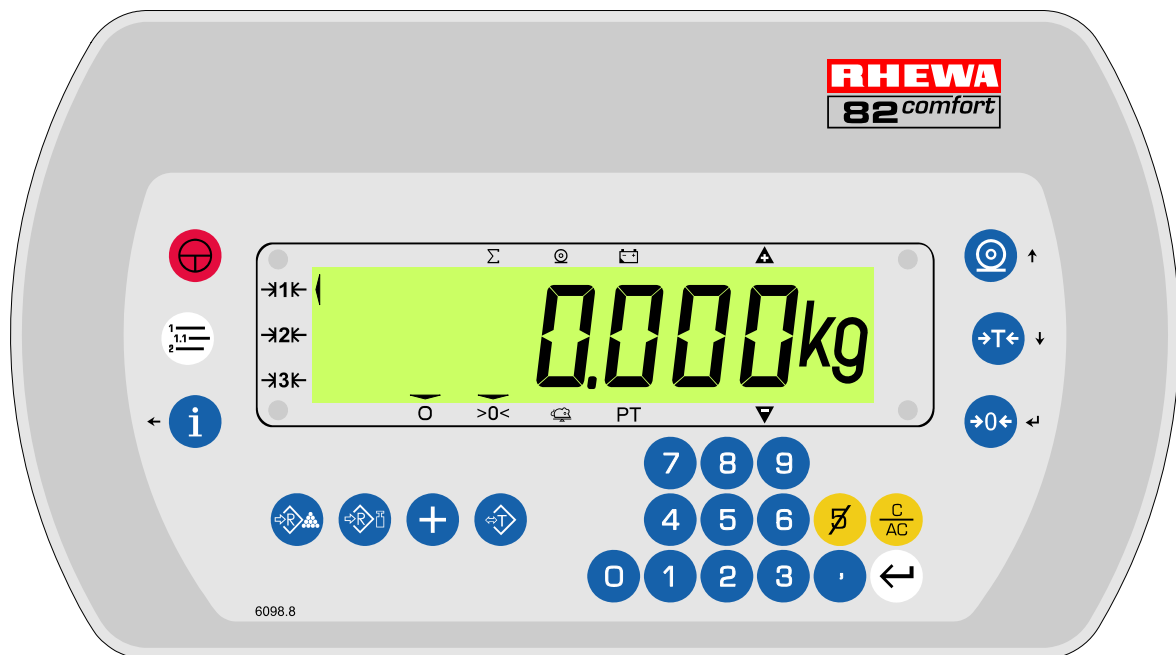


Indicator 82comfort Operating Manual

Firmware 1.01.18 or higher



RHEWA–WAAGENFABRIK
August Freudewald GmbH & Co. KG

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Rapidly advancing technological developments and shorter product cycles prevent us from bringing this documentation exactly into line with the device functions and properties. Should any deviations exist, the device is to be used analogously.

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References to the disposal of packing, rechargeable batteries and old devices you will find in our terms of delivery and on our web page.

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- Before installing, starting up and using the indicator and the weighing instrument, please read this operating manual attentively.
- Always comply with the safety information.
- When using the weighing instrument in legal-for-trade applications, ensure that the official verification and sealing marks are intact. The electronic verification seal number displayed must be the same as the number on the main rating plate. The electronic verification seal must not have been destroyed.
- If verification or sealing marks have been damaged, if the verification seal number displayed is not the same as the number on the main rating plate, or if the electronic verification seal has been destroyed, the weighing instrument is no longer deemed to be verified and may no longer be used in legal-for-trade applications. If there is a risk of the weighing instrument being used unwittingly or inadvertently in legal-for-trade applications, it must be taken out of operation.



2.1 Mains connection

- The indicator may be connected only to a properly installed socket outlet. The socket outlet must comply with the local regulations.
- Before connecting the indicator to the mains, ensure that the voltage information on the data plate corresponds to the mains voltage. If this is not the case, the indicator may not be operated on mains electricity. If the Indicator is operated at the wrong mains voltage, there is a risk of electric shock.
- The Indicator may not be used if the power cord is damaged. If the Indicator is used with a damaged power cord, there is a risk of electric shock.



2.2 Arc welding work

- When carrying out arc welding work on the weighing instrument or the weighing platform, always disconnect the appliance from the mains. Even if the appliance has been disconnected from the mains, always ensure that no welding currents are allowed to flow through the load cells.



2.3 Handling

- The keypad is designed for hand operation only. Never use pointed objects for key operation.
- If the keypad or display window is damaged, the weighing instrument may not be used and must be disconnected from the mains. The keypad must be replaced by our customer service or a specialist firm. For as long as the keypad or display window are damaged, the indicator must be protected against moisture, liquids and dust, in particular.
- There are no operating components inside the enclosure. The device enclosure may be opened only for service or repair purposes.

2.4 Cleaning

- Always use mild cleaning agents to clean the indicator. Solvent-containing, aggressive and abrasive cleaning agents may not be used.
- The appliance enclosure is rated to IP67. Ingress of water jets is not possible from any direction. The IP67 rating does not prevent the ingress of moisture when a high-pressure cleaner is used. Never spray the enclosure using a high-pressure cleaner.

2.5 Storage

- The weighing platform must not be subjected to a load while the instrument is in storage.

2.6 Ambient conditions

- Level, stable surface for the weighing platform
- No draughts (open windows or doors)
- Operating temperature of 0°C to +40°C, no large temperature fluctuations (e.g. direct sunlight, outlets of air-conditioning or heating systems)
- No vibrations
- No magnetic fields
- Not in immediate vicinity of transmitters (mobile phones, radio equipment, etc.)
- No corrosive liquids or aggressive substances
- Weighing instrument must be cleaned with a soft cloth. Do not use solvent-containing, aggressive or abrasive cleaning agents.
- The indicator is protected against the ingress of moisture and water. Depending on the design of the weighing platform, however, other ambient conditions may have to be observed.

3.1 Symbols

Stop
This instruction must be obeyed at all times.



Attention
Please take careful note.



Information
Additional information or explanations.



3.2 Fonts

Appearance	Meaning
<i>123456</i> <i>A]CDEF</i>	Characters on the 7-segment display. Some letters and symbols are difficult to represent.
<i>» ERR0 I «</i>	Flashing display.
Printout	Indicates output to a print device.

3.3 Character set for the 14-segment display

Letters

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
<i>A</i>	<i>B</i>	<i>C</i>	<i>d</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>	<i>J</i>	<i>K</i>	<i>L</i>	<i>M</i>	<i>N</i>	<i>O</i>	<i>P</i>	<i>Q</i>	<i>R</i>	<i>S</i>	<i>T</i>	<i>U</i>	<i>V</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>

Numbers

1	2	3	4	5	6	7	8	9	0
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>0</i>

No differentiation is made between uppercase and lowercase on the display.
Menu and message texts are comfortably represented on the 14-segment display.
When creating the display texts, care was taken to use terms and abbreviations that ensure the highest possible legibility.
Information longer than the six spaces on the display appears as ticker text.

3.4 List symbols

→ Action

→ Instructions to be performed are indicated by an arrow.

✓ Control

✓ Outcomes or events that permit a review of the action performed are furnished with a tick.

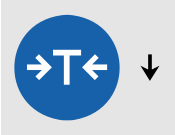
- **List**

- Simple list of points.

3.5 Keys

The keys are represented by symbols in this manual.

Example:

Key				
Symbol				

For navigating in a menu some keys also function as direction keys for selecting menu levels or setting parameters.

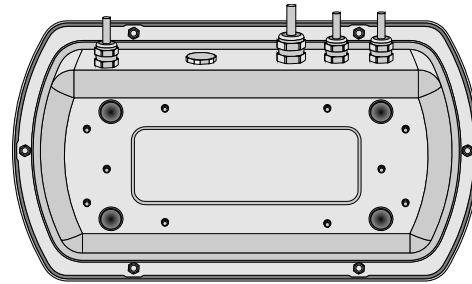
To indicate the standard function only the key symbol itself is used: 

To indicate the additional function the symbol is shown with an arrow: 

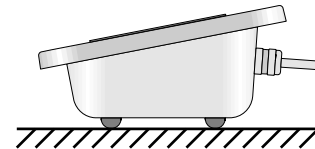
4.1 Desktop setup

The indicator is supplied for use on a desktop as standard.

Four rubber feet have already been attached to the underside of the enclosure.



The device can be positioned on a level surface without the need for additional installation work. The angle of the enclosure creates a favourable angle for reading off the LC display.



4.2 Wall setup

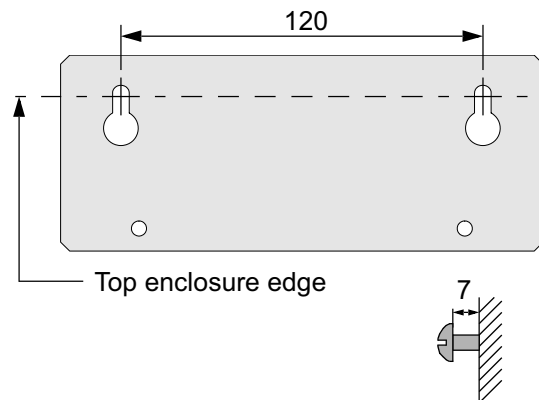
A metal bracket is supplied for mounting the device on a wall.

Before the bracket is screwed to the enclosure, it can be used as a drill template.

When the device has been mounted the top edge of the enclosure is situated roughly level with the drilled holes.

Two holes have to be drilled 120 mm apart. Use appropriate wall plugs and screws according to the condition of the wall.

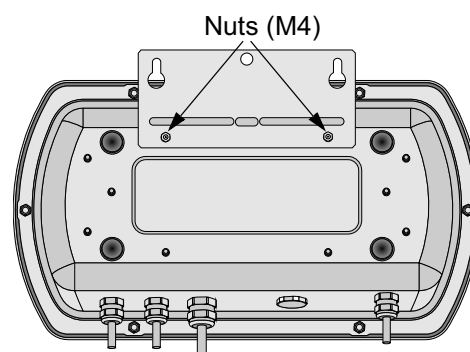
Insert the screws into the wall plugs and tighten until the screw head is about 7 mm from the wall.



Screw head max. 10 mm Ø

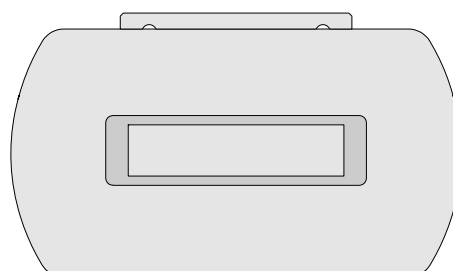
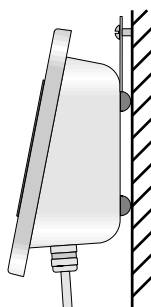
Screw shaft max. 5 mm Ø

Attach the metal bracket to the rear of the enclosure with two nuts on the (M4) threaded pins. The cable glands are situated on the opposite side of the enclosure.



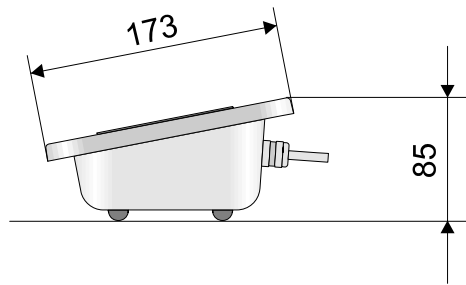
Suspend the device with the metal bracket on the two retaining screws in the wall.

The angle of the enclosure creates a favourable angle for reading the LC display.

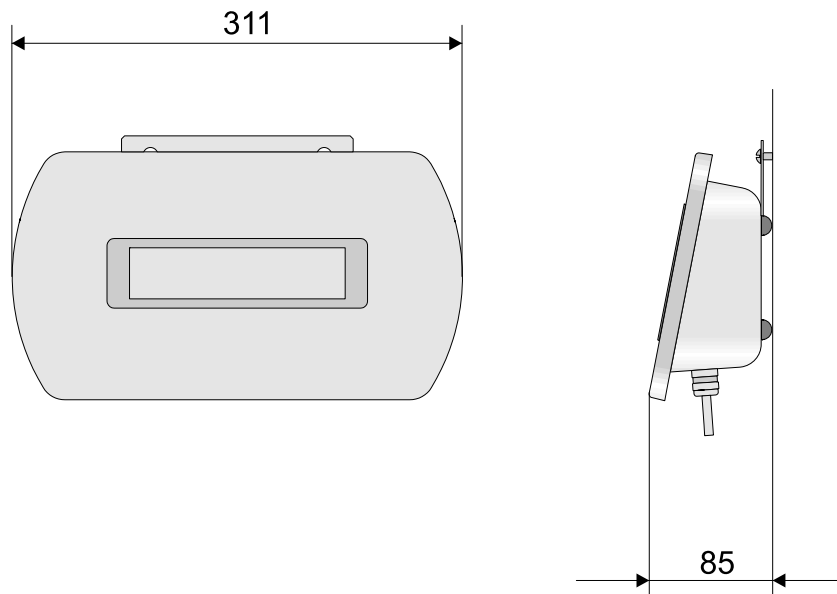


4.3 Dimensions

4.3.1 Desktop setup



4.3.2 Wall setup



4.4 Switching between desktop and wall setup

Depending on the setup the control and viewing direction will change.

When a device has been setup for use on the desktop, the keypad and the LC display will be upside down if it is installed on a wall.

The same effect is encountered if you use a device setup for wall installation on the desktop.

As the enclosure cover is designed symmetrically and the display is positioned exactly in the middle, the cover can be rotated with the keypad. The membrane keypad will then be in the correct position for use.

The LC display is located on the main board and cannot be rotated.

However, the components of the LC display are also symmetrically designed.

Changing the socket for the membrane keypad ribbon cable when rotating the enclosure cover will adjust the viewing direction automatically.

For special power-up procedures the viewing direction can also be adjusted by changing the position of a jumper. The position of this jumper should always match the device setup (desktop/wall).



The enclosure cover may be rotated only with special care and in strict compliance with the following safety information.

4.5 Rotating the enclosure cover

4.5.1 Safety information

Persons working on the electronics must discharge themselves beforehand and ensure they do not become charged again while working.
An anti-static wristband must be used.



- Shut down the device.
- Remove the mains plug or cut off the power (switch, fuse) and safeguard against inadvertent reconnection.
- Put on anti-static wristband.
- Connect anti-static wristband (e.g. to earthing contact of a socket outlet).
- Touch the indicator enclosure to place yourself at the same potential.
- Perform the work on the electronics.

Make sure you comply with the safety information. Improper handling of electronic assemblies can result in their being destroyed.
No guarantee can be assumed for any defects that occur in this case.



When opening up the device ensure no metal objects (screws, nuts, washers, paper clips, etc.) find their way inside the enclosure.



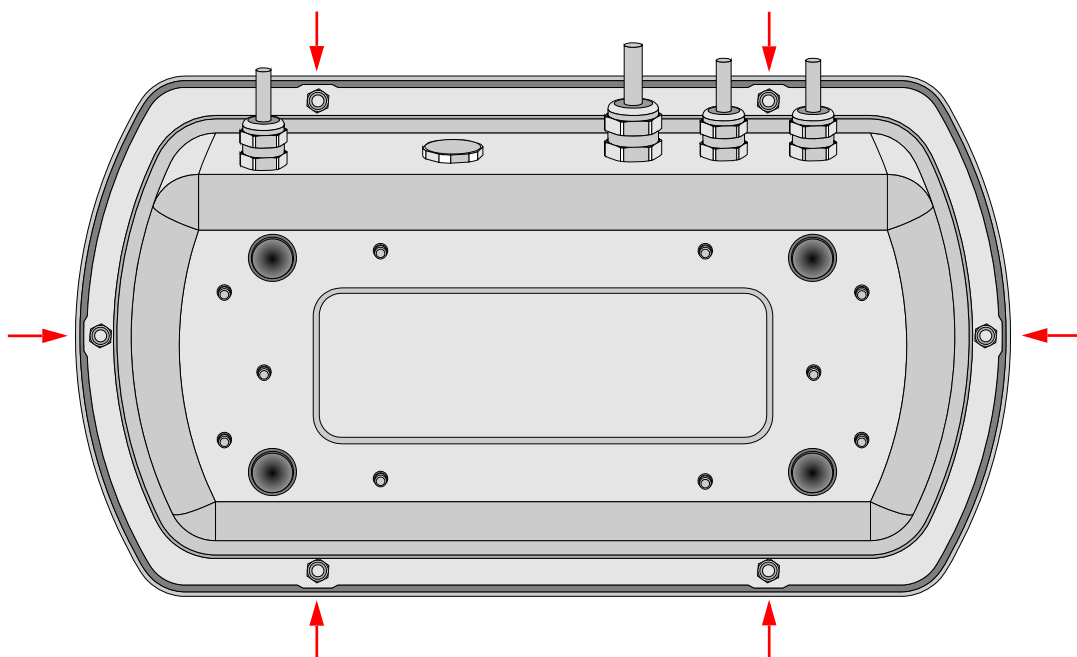
4.5.2 Opening the enclosure

Shut down the device.

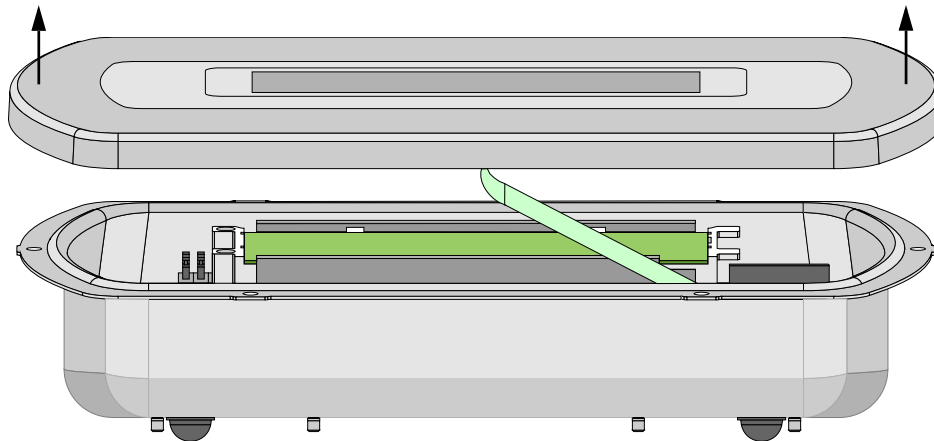
Cut off the power supply, remove the mains plug.
Do not restore the power supply until the device has been closed again.



Loosen the 6 M4 nuts on the device rear using a 7 mm socket wrench.



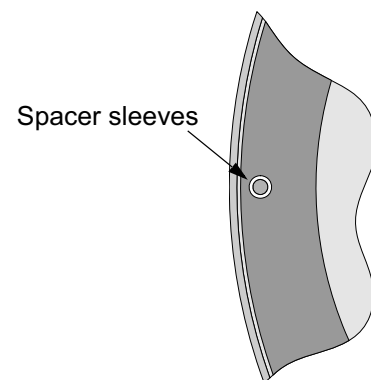
Lift off the enclosure cover perpendicular to the device.



Caution!

The keypad ribbon cable is plugged into the main board. Do not tear off the ribbon cable or remove forcibly from the connector. Do not bend or kink the cable.

The glued-in enclosure gasket is located on the inside of the cover. To ensure the correct distance between the gasket flange and the cover when closing the enclosure, spacer sleeves are inserted on the threaded pins. The spacer sleeves must not be mislaid.

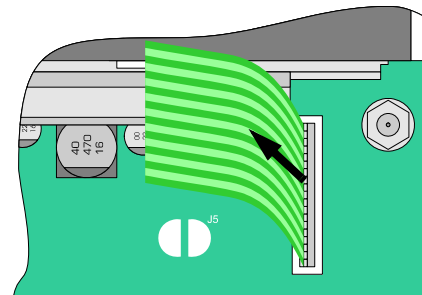


4.5.3 Disconnecting the keypad

Desktop setup

The plug-and-socket connection is situated to the bottom right on the main board.

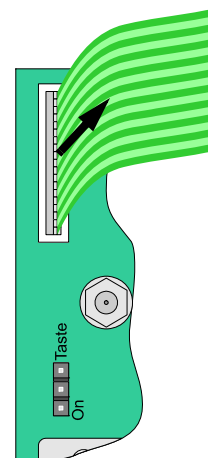
The ribbon cable is not clamped in the connector.
Lift the ribbon cable vertically out of the connector.



Wall setup

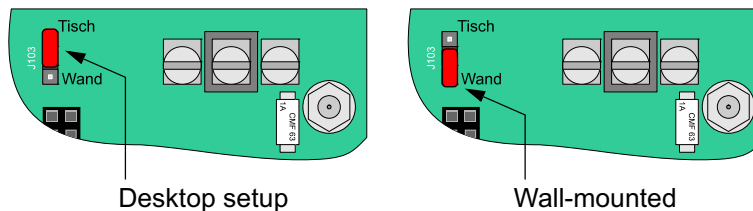
The plug-and-socket connection is situated to the top left on the main board.

The ribbon cable is not clamped in the connector.
Lift the ribbon cable vertically out of the connector.



4.5.4 Changing the jumper position

According to your choice of setup, plug jumper J103, top right on the main board, into the desktop (Tisch) or wall (Wand) position.



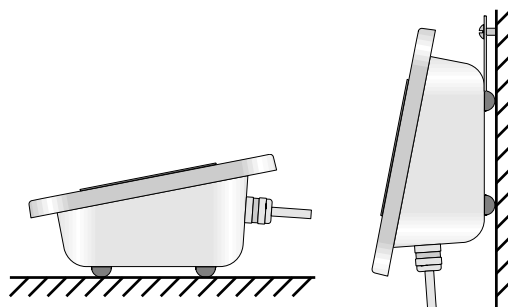
4.5.5 Rotating the cover

Desktop setup

Top edge of the cover towards the side with the cable connections.

Wall-mounted

Bottom edge of the cover towards the side with the cable connections.



4.5.6 Closing the enclosure

On completion of the work carefully close the device.

Ensure no metal objects (screws, nuts, washers, paper clips, etc.) are left inside the enclosure.

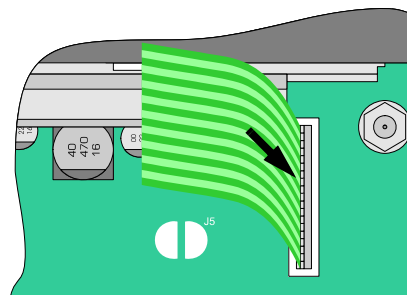


4.5.7 Connecting the keypad

Desktop setup

The plug-and-socket connection is situated at the bottom right on the main board.

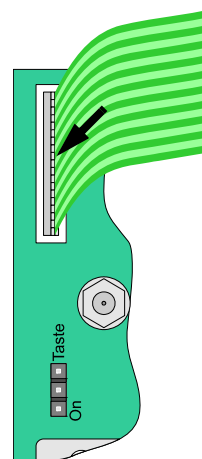
Insert the ribbon cable.



Wall-mounted

The plug-and-socket connection is situated at the top left on the main board.

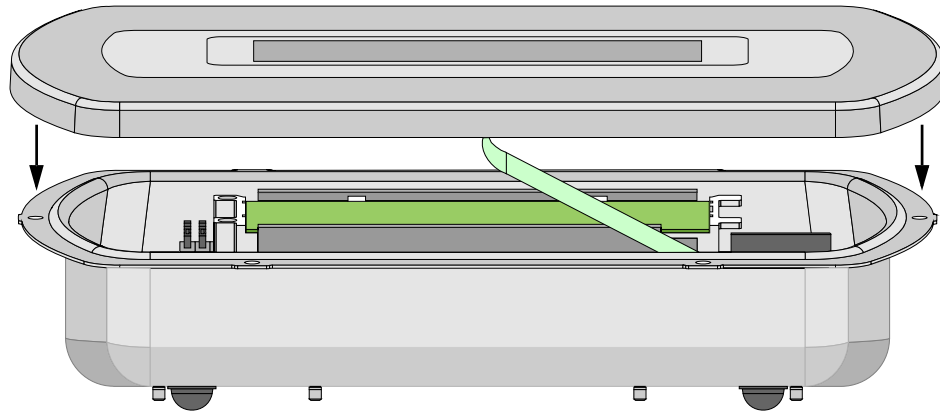
Insert the ribbon cable.



4.5.8 Replacing the enclosure cover

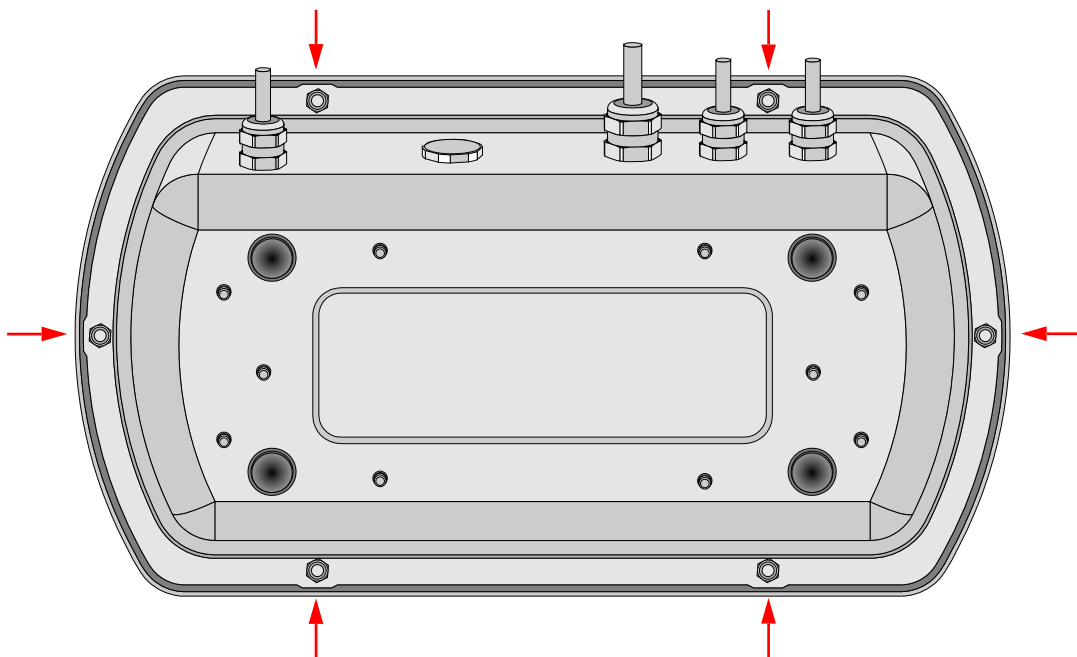
The keypad ribbon cable must lie freely in a loop between the enclosure cover and the main board. Do not bend or kink the cable.

Place the cover on the enclosure base.



Slide the threaded pins on the cover through the drilled holes of the gasket flange.

Screw the 6 M4 nuts onto the threaded pins on the device rear and tighten using a 7 mm socket wrench.



5.1 Switching on

✓ The weighing platform is at no load.

→ Press  to switch on.

The device runs through a test and initialisation routine.

The following information is displayed in sequence.

✓ Display test (all segments are switched on)

✓ Device type

✓ Manufacturer's number *MFR. No* 060358

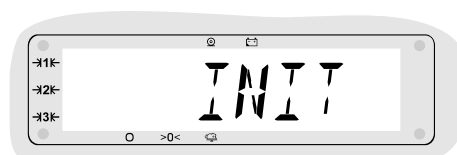
✓ Board number *PLATNR* 060264

✓ Software version *PRoGRA* 10.1.16

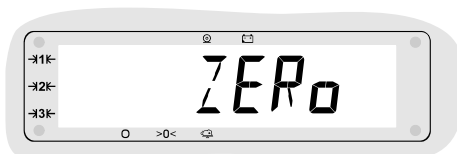
✓ Date (according to version) *DATE* 19.10.06

✓ Time (according to version) *TIME* 1345

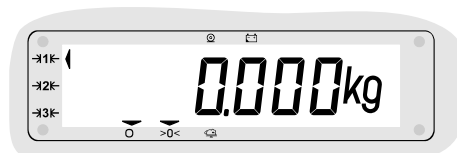
✓ Initialisation of various software components.



✓ Zero reset of the weighing platform.



Weight indication, weighing instrument is operational.



5.2 Possible error messages on power up

5.2.1 Zero reset not possible

Automatic zeroing fails if the weighing platform is subject to a load or the indication is unstable.

UNLOAD
Unload

Unload is displayed for 10 seconds

ERRZERO
Error Zero

Not zeroed

» 1234 «

The weight value flashes on the display

The most recent manually set zero point is used.

Weighing is possible, but the indication may be affected by a systematic error.

The weighing platform should be manually set to zero as soon as possible using the  key.

On successful zero reset the weight value is continuously displayed.

5.2.2 Verification seal destroyed

VERIFICATION SEAL DESTROYED

Ticker "Verification seal destroyed"

Verification seal destroyed



The electronic verification seal has been destroyed.

The weighing instrument is no longer verified and may not be used in legal-for-trade applications!

5.2.3 Incorrect dongle number

INCORRECT dongLE

Ticker "Incorrect dongle"

Incorrect dongle

Confirm message by pressing  ←



The dongle is an electronic device in the terminal box of the weighing platform. It comes with an identification number that is checked by the indicator on power up.

The number of the connected weighing platform is not the same as the number recorded during adjustment. The wrong weighing platform has been connected.

The weighing instrument is no longer verified and may not be used in legal-for-trade applications!

5.3 Switching off

✓ Device is in weighing mode

→ Press  to switch off.

If the indicator is going to be left switched off for several days, remove all loads from the weighing platform!



Always use the  key to switch off the device. Never switch off the device by cutting off the power supply!

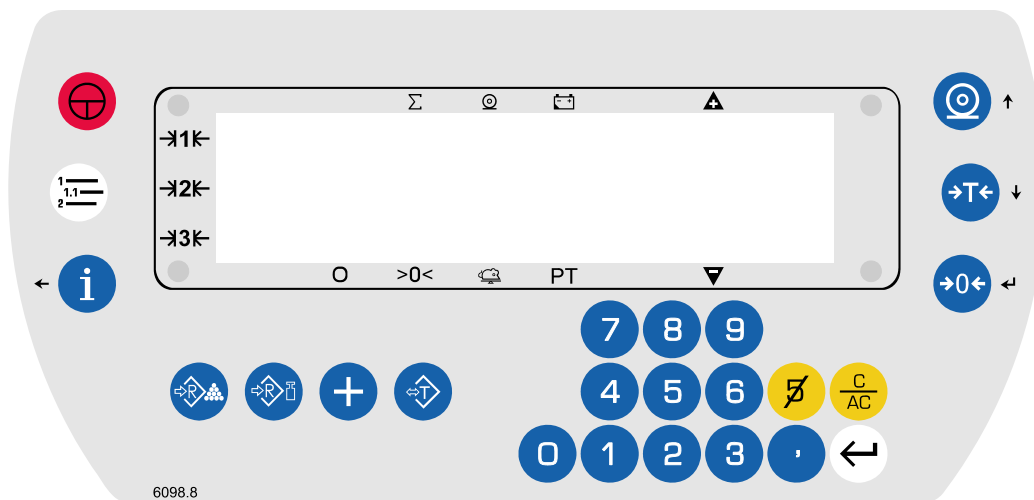


Note

Instead of being written straight to the permanent memory, unstable and rapidly changing data remains in the volatile memory for a few milliseconds. The write cycle itself also takes a certain time. When the power is disconnected there is therefore a risk of this data being saved incorrectly or not at all, and other data may also be damaged.

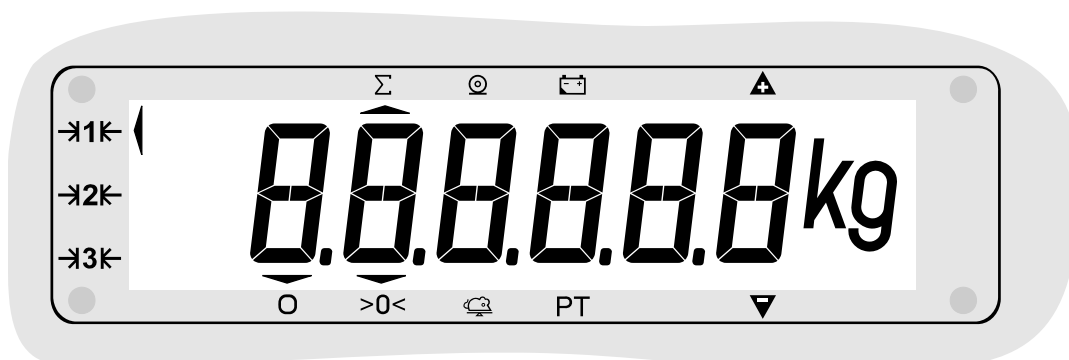
When the device is switched off using the  key, the data in the volatile memory is written to the permanent memory and the write cycle is terminated correctly before the power is shut off, thus guaranteeing reliable data storage.

6.1 Control panel



The control panel contains all the keys and display elements.

6.2 LC display



Symbol	Meaning
kg	Unit of weight kg
g	Unit of weight g
<i>NET</i>	The net weight is displayed
	Count function is active
	Indicator arrows mark the current status and active functions.

6.3 Symbols on the display

Various function symbols are used on the display.

In addition, indicator arrows are activated according to the weighing instrument status and the selected function.

Symbol	Meaning
	Weight value in range 1
	Weight value in range 2
	Weight value in range 3
	Load on the weighing instrument at rest
	Zero position reached
	Animal weighing active
	Preset tare active
	Total value in the memory
	Interface sending or receiving data
	Battery is empty or almost empty
	Count function: optimise reference weight (increase quantity)
	Count function: optimise reference weight (decrease quantity)

6.4 Keys

The keys are arranged in groups and used to control weighing instrument functions, navigate in menus and enter values.

The individual keys are explained in the following table. The symbols depict the keys as they are used in the operating manual:

Key	Symbol	Function
On-Off 		Switches the device on and off.
Menu 		Accesses the menus for setting device properties and for adjusting the device.
Information 		Displays information on current functions and values. If the verification seal is closed, a ten times higher resolution can briefly be activated in weighing mode by pressing and holding down the i key.

Key	Symbol	Function
Print 		Generates a printout or a data output.
Tare 		Tares the weighing instrument.
Zero 		Zeroes the indication with the weighing instrument at no load.
Count Calculate reference weight 		Starts count function based on known initial quantity. Enter the initial quantity beforehand. The reference weight is calculated.
Count Enter reference weight 		Starts count function with known reference weight. Enter the reference weight (in grams) beforehand.
Add 		Adds together current values.
Preset tare 		Manual entry of a tare value.

Key	Symbol	Function
Numeric pad   	 to  and 	Entry of numeric values.
DELETE 		Deletes the character last entered.
Cancel 		Deletes the entire entry or ends active functions.
Enter 		Confirms a selection or entry.

6.5 Navigating in the menu

The menu for setting parameters is accessed by pressing the  key.
The menu structure takes a tree form with several sublevels.

Example



The menu item *CLK* is located on the main level, the menu items *DATE* and *TIME* on the first sublevel.

Depending on the menu level there are varying numbers of branches and sublevels.

The arrows next to the , ,  and  keys symbolise the key function for navigating in the menu.

Key	Navigation in the menu
	Return to next higher menu level
	Select previous menu item
	Select following menu item
	Select menu item and go to sublevel

6.6 Entering or selecting values

Depending on the menu level or operating situation, values can be changed in two different ways.

- A free value (within the permitted limits) can be entered.
- A value can be selected from a limited list of values.

Navigation key functions

Key	Entry function	
	Entry of values	Selection from list
	Entry position one decimal place to the left	
	Increase current decimal place by 1	Scroll up list
	Reduce current decimal place by 1	Scroll down list
	Entry position one decimal place to the right and then confirm value	Confirm selection

6.6.1 Entering values

a) Changing and applying values

- The numeric keys can be used to enter a new value at the current entry position. The entry position then jumps automatically to the next place.
The entry position can be selected using the $\odot \leftarrow$ or $\leftarrow \text{i}$ keys.
Once the entry is complete, the entire value can be applied using the $\leftarrow$ key.
- The value at the current entry position can be changed in steps using the $\odot \uparrow$ or $\uparrow \odot$ keys.
The $\odot \leftarrow$ key can first be used to confirm the setting for an individual decimal place.
If you do not enter a value at the next decimal place and the entry position remains empty, you can then apply the whole value by pressing the $\odot \leftarrow$ key.

b) Deleting a decimal place

- The decimal place at the current entry position can be deleted using the D key. The value displayed decreases by one decimal place. The entry position can be selected using the $\odot \leftarrow$ or $\leftarrow \text{i}$ keys.
- At the first place (far left) of a value already being displayed you can also select an empty entry using the $\odot \uparrow$ or $\uparrow \odot$ keys.
On confirmation with the $\odot \leftarrow$ key this number is deleted and the value reduced (shifted to the left) by one decimal place.

c) Deleting values

The value on the display can be deleted in full and then re-entered using the $\frac{\text{C}}{\text{AC}}$ key.

d) Entering a decimal point

- A decimal place can be entered at the current entry position using the $\circ$ key. The decimal point then appears to the left of the entry position. If an existing decimal point is selected as the entry position using the $\odot \leftarrow$ or $\leftarrow \text{i}$ or keys, it can be deleted with the D key.
- If you start your entry with a decimal point, a zero is placed before the decimal point ($0.$).
- Instead of a number, you can also select a decimal point at the last place of the entry position using the $\odot \uparrow$ or $\uparrow \odot$ keys. On confirmation with the $\odot \leftarrow$ key the decimal point is entered at this position and the entry position jumps to the next decimal place. A decimal point within a value can be deleted or moved only by deleting and re-entering new decimal places.

6.6.2 Selecting from a list

You can use the $\odot \uparrow$ or $\uparrow \odot$ keys to scroll through a list of default values.

Confirm with the $\odot \leftarrow$ key to apply the selected value.

→ Place the item to be weighed on the weighing platform.

Do not load the weighing platform over the maximum safe load indicated on the data plate.

✓ The weight value is displayed.

When the final weight value has been attained (indication is stable), this is indicated by the arrow  above the O symbol.

Where there are several weighing ranges, the current range $\rightarrow 1k$, $\rightarrow 2k$ or $\rightarrow 3k$ is indicated by the arrow .

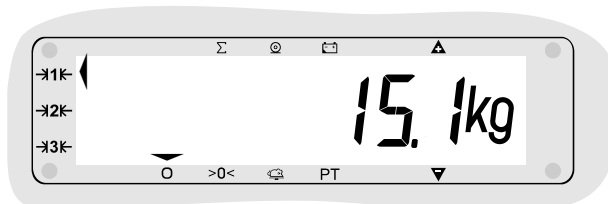


Examples

A weight of 15.1 kg has been placed on the weighing platform.

The indication is stable

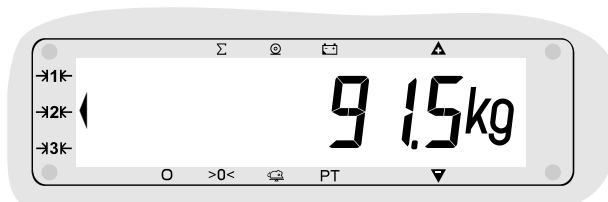
Weighing range 1



A weight of 91.5 kg has been placed on the weighing platform.

The indication is unstable.

Weighing range 2



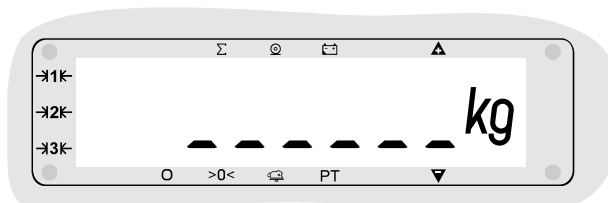
7.1 Underload/Overload

Weight values that lie within the weighing range are displayed.

Underload

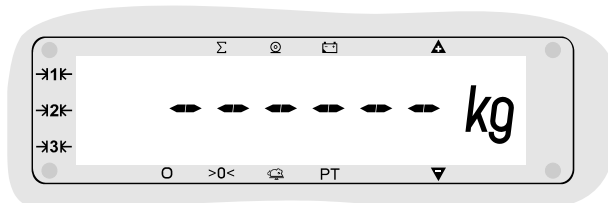
On removal of a load from the weighing platform, UNDERLOAD is displayed from 9 scale intervals below 0 kg, unless a tare has been saved, in which case negative weight values are also displayed.

To rectify the underload, place the correct initial load (e.g. a dish) on the weighing platform, set to zero by pressing  or switch the indicator off and back on again using .



Overload

From 9 scale intervals above Max, OVERLOAD is displayed. To rectify, place a load with a weight value within the weighing range on the weighing platform.



Printing

Depending on the printer settings, a printout can be generated using the  key even with negative weight values.

Legal-for-trade use

According to the regulations for verified weighing instruments (EN 45501: 1992), weighing operations with a weight value below Min are not permissible in legal-for-trade applications.

7.2 Multiple ranges

Devices where the entire weighing range has different scale intervals rather than one uniform scale interval are known as multiple range or multi-interval weighing instruments. The individual weighing ranges and scale intervals are indicated on the data plate.

- ✓ Selection of the range, and thus the scale interval, is performed automatically.
- ✓ On weighing instruments with more than one weighing range, the current range ~~→1←~~, ~~→2←~~ or ~~→3←~~ is displayed.



Multiple range

When the range limit (weight value > Max_n) is exceeded, the device automatically selects the scale interval of the next highest range. The scale interval of the higher range remains selected even if the weight value falls below Max of the previous range. Only when the gross weight is exactly 0 kg does the weighing instrument return to Range Max₁ and reselect the scale interval of the smallest range.

Example:

Max ₁	15 kg	Max ₂	30 kg
d ₁ =	5 g	d ₂ =	10 g

A weight value of 12.425 kg is in range 1.

Add a weight of 6 kg, the weight value of 18.430 kg is in range 2.

Remove 4 kg, the weight value of 14.430 kg remains in range 2.

Multi-interval

When the range limit (weight value > Max_n) is exceeded, the device automatically selects the scale interval of the next highest range. If the weight value falls below Min of the range in use (weight value < Max_n = Min_{n+1}), the scale interval of the previous range is used.

Example:

Max ₁	15 kg	Max ₂	30 kg
d ₁ =	5 g	d ₂ =	10 g

A weight value of 12.425 kg is in range 1.

Add a weight of 3 kg, the weight value of 15.430 kg is in range 2.

Remove 4 kg, the weight value of 11.425 kg is back in range 1 again.

7.3 Zeroing

Zeroing sets the indication to 0.0 when no load is on the weighing platform, thus compensating for any changes in weight caused by dirt or product residues, for example, with the platform at no load. The ZERO POSITION is indicated by an  above the >0< symbol.

If the initial load changes significantly due to a device on the weighing platform, for example, the weighing instrument must be readjusted or at least the zero point reset.

Adjustment of the instrument or resetting of the zero point can be performed by your service partner.

Display	Explanation
00 12kg	→ The initial load has changed. To zero, press the  key.
ZER0 Zero	✓ ZER0 appears briefly on the display.
0.0000kg	✓ Zeroing successful. The display reads exactly zero, the arrow  above the >0< symbol indicates that the ZERO POSITION has been attained. Once the indication is stable, the arrow  also appears above the 0 symbol. The tare is cleared on successful zero reset.
UNL0Ad Unload	✓ Zeroing unsuccessful. The initial load has changed by a substantial amount, Unload appears on the display. To set to zero, remove load from weighing platform and zero again by pressing  . If the device cannot be set to zero manually by pressing  , switch the indicator off and back on again to permit use of the larger initial zero setting range. The indicator should now read 0.0000kg. If an initial zero reset is not possible, ER.ZER0 (Error Zero) will appear briefly on the display followed by the flashing weight value. In this case, proceed as described at Chapter 17 "Messages and errors" on page 61.

7.4 Tare

The tare function sets the indication to 0.0 each time the key is pressed.

Completion of a tare operation is indicated by the word NET above the unit, e.g. ^{NET}kg

On printout the gross, net and tare values are printed out.

7.4.1 Terminology

- The total weight of the container and its contents is termed GROSS.
- NET is the weight of the contents.
- By TARE we mean the weight of the empty container.
- The TARE is measured and set by pressing .
TARING sets the indication to exactly zero, not just to the scale interval displayed.
- A PRESET TARE is entered as a value via the numeric keypad and confirmed with .
It is accurate to the scale interval indicated.

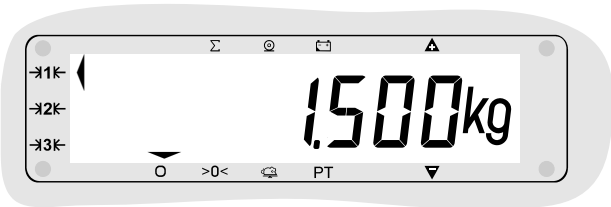
7.4.2 Abbreviations

The following standardised international metrology abbreviations are used:

Abbreviation	Meaning	Explanation
B or G	Gross	Container + contents
NET	Net	Contents
T	Tare	A measured tare value, press $\oplus T \ominus$ to tare
T1	Tare Memory 1	A measured tare value, press $\oplus T \ominus$ to tare Memory 1 is used
T2	Tare Memory 2	A measured tare value, press $\oplus T \ominus$ to tare Memory 2 is used
PT	Preset tare	A previously entered tare value, press $\oplus T \oplus$ to tare.

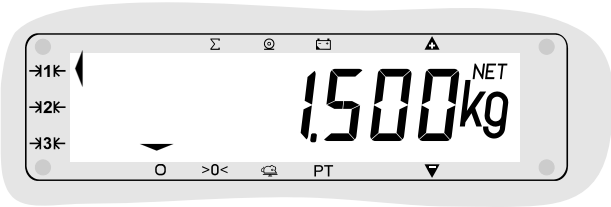
7.4.3 Display

No tare set



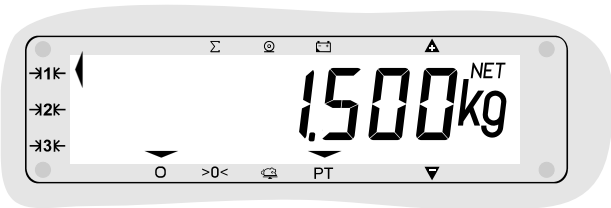
Tare is set

Indicated by kg^{NET}



Preset tare is set

Indicated by kg^{NET} and the indicator arrow above the PT symbol



7.4.4 Setting the tare

- $0.000kg$ → Place an empty container on the weighing platform.
- $1.500kg$ → Press tare $\oplus T \ominus$.
- $0.000kg^{NET}$ ✓ Container weight is tared, the display changes from kg to kg^{NET} . Taring sets the net weight to exactly $0.000kg^{NET}$.
- $2.040kg^{NET}$ → Fill the container. The weight of the contents (net) is displayed.

7.4.5 Clearing the tare

Display	Explanation
2040 ^{NET} kg	✓ The net weight is displayed. → Press  followed by  or → Hold down the tare key  for a few seconds.
3540kg	✓ The total weight is displayed. The tare is cleared.

The tare is also cleared on zero reset.

7.4.6 Setting the preset tare

3540kg	Place an empty container on the weighing platform.
15	Enter container weight via the numeric keypad    and press the  key.
2040 ^{NET} kg	The weight of the contents (net) is displayed. The indicator arrow  above the PT symbol indicates that the preset tare is set.

Note

- The preset tare is always rounded off to the current scale interval, even when entered exactly.
- The preset tare is performed in the unit of weight that corresponds to the one indicated on the display.

7.4.7 Clearing the preset tare

Display	Explanation
2040 ^{NET} kg	✓ The net weight is displayed. → Press  followed by  or → hold down the  key for a few seconds or → enter 0 as the preset tare.
3540kg	✓ The preset tare is cleared and the total weight on the weighing platform is displayed.

If the device is tared again using  (tare) after a preset tare is entered, the preset tare cannot be changed or deleted in the manner described above.

The message *ERR LCK* appears on the display. The tare value must be cleared first.

The preset tare is also cleared when setting the indication to zero.

7.4.8 Displaying tare values

Tare values can be shown on the display using the  key.

Pressing the   keys displays the measured tare value and the   keys the preset tare.

If no tare values are available, the message *No TARE* or *No PT* appears on the display.

7.5 Autotare

The auto tare function tares a container automatically.

To be able to use this function, auto tare must be activated.

Activation of the auto tare function can be performed by your service partner.

7.5.1 Working with auto tare

Display	Explanation
0.000kg	✓ Weighing platform is at no load.
1.500kg	→ Place empty container on weighing platform.
0.000 ^{NET} kg	✓ Container is tared automatically.
2.040 ^{NET} kg	→ Fill the container and read off the net weight. You can continue manual taring in the usual way by pressing  .
	→ Remove container with contents from the weighing platform.
0.000kg	✓ The tare is automatically cleared.

- The auto tare function works only with gross weights above 5d (scale intervals). (The scale interval is indicated on the data plate.)
- If the gross weight is smaller than the automatically tared container weight, the tare is cleared automatically.

7.5.2 Manually clearing the autotare

The auto tare can be cleared manually with a load on the weighing platform. To do so, hold down the  key for a few seconds. The total weight on the weighing platform is displayed.

Before auto tare can be used again, the weighing platform must be completely unloaded. The auto tare function will not be reactivated until the gross weight is zero.

7.6 Automatically clearing the tare

If this function is activated, the tare is cleared automatically when the load is removed from the weighing platform.

Activation of this function can be performed by your service partner.

Display	Explanation
0.000kg	✓ Weighing platform is at no load.
1.500kg	→ An empty container is placed on the platform.
0.000 ^{NET} kg	→ Manually set the tare using  .
2.040 ^{NET} kg	→ Fill the container and read off the net weight. → Remove container with contents from the weighing platform.
0.000kg	✓ The tare is automatically cleared.

7.7 Working with two tare memories

The indicator can work with one or two tare memories.

Operation of the tare functions is as described above.

Setting the number of tare memories can be performed by your service partner.

7.7.1 Method of operation with two tare memories

Tare memory 1 is set when the initial tare value is obtained.

Every additional tare operation increases tare memory 2.

7.7.2 Method of operation with auto tare

The container weight is automatically stored in tare memory 1.

All additional manual tare values are added to tare memory 2.

7.7.3 Displaying tare values

Press the   keys in sequence to display the values in the two tare memories one after the other.

8.1 Function

The count function is used to show the quantity of identical items rather than the weight. The indicator calculates and displays the quantity based upon the weight on the weighing platform and the REFERENCE WEIGHT.

The reference weight is determined by weighing a sample number of items and entering the quantity. The number of items used to determine the reference weight is termed the REFERENCE QUANTITY. On entering the initial quantity, the number of items is optimised to permit the most accurate count possible.

The reference weight can also be entered, but no optimisation takes place.

8.1.1 Possible error sources

The quantity determined by the indicator is heavily dependent upon the items being uniform. If the weight of the individual items has a large tolerance, the result of the count will differ accordingly.

Example:

The nominal weight of a part is 2.5 g. Owing to production tolerances the actual weight of the part varies by 1% between 2.475 g to 2.525 g. The indicator displays 1000 pieces, but due to the difference in weight of the parts the actual quantity may be between 990 and 1010.

- If no optimisation is performed when determining the reference weight, the reference weight will not be accurate enough to ensure the result of the count is correct, especially in conjunction with very small and light items.
- No optimisation can be performed below the smallest reference weight.
- Minor discrepancies between the actual weight and the weight shown on the display are permissible within the verification error limits. The quantity may deviate accordingly.

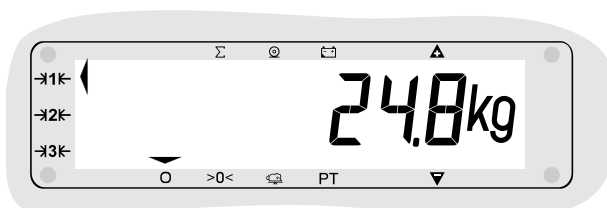
8.2 Count function display

The count function is used to ascertain the quantity of identical items.

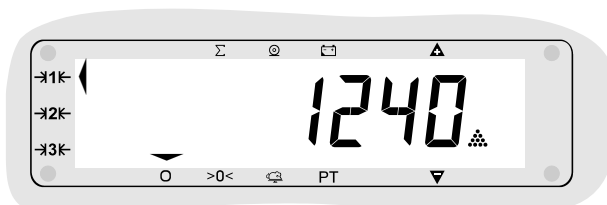
The reference weight can be entered or determined. The quantity is then indicated on the display.

Display

Weight

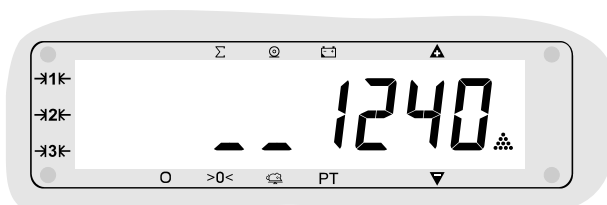


Number



Number

The reference weight/weight of the items is too small. Counting is possible, but not with great accuracy.



8.3 Determining the reference weight

With container: → Place container on weighing platform and tare by pressing $\oplus\text{T}$.

Without container: → If necessary, zero the indication by pressing $\oplus\text{0}$.

Display	Explanation
0.000kg	→ Add initial quantity of items.
1.250kg	→ Enter the number of items using the numeric keypad.
100	→ Confirm by pressing $\otimes$. Δk appears briefly on the display.
100 Δ	✓ The reference weight is determined and the quantity displayed.
	→ Add all items.
253 Δ	→ The quantity is displayed.

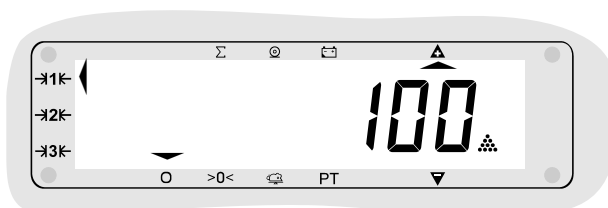
The reference weight can be displayed using the i $\otimes$ keys.

8.4 Optimising the reference weight

The optimise function improves the reference weight - especially in conjunction with lightweight items - and thus the accuracy of the count. The optimisation process can be activated automatically, if required, and indicated by an arrow at the Δ and ∇ symbols. The indicator arrow goes out when the optimisation process is complete.

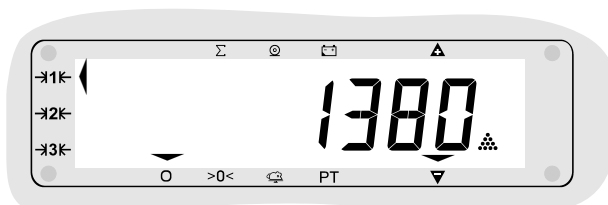
The quantity is displayed, indicator arrow by Δ :

Add more items.



The quantity is displayed, indicator arrow by ∇ :

Remove some items.



Display	Next step
100 Δ	✓ The quantity is displayed, indicator arrow by Δ .
	→ Information on the reference weight and the optimum quantity can be obtained by pressing [i] [k] .
REFWGT 124627	✓ The indicator first displays the reference weight, ...
OPTQTY 1027	✓ and then the optimum quantity.
	→ Add more items.
1380	✓ On coming to rest the indicator applies the new quantity automatically and optimises the reference weight. Δ appears briefly on the display. If the indicator arrow appears by ∇ , too many items have been added. → Remove some items. → Repeat the procedure until optimisation is complete.

If the optimum quantity would exceed the maximum weight that may be placed on the weighing platform, the weighing platform may be loaded only up to its maximum capacity. The optimisation process is then terminated and the reference weight determined.

Ending optimisation

The optimisation process can be ended by pressing the [k] key.

8.5 Entering the reference weight

Instead of the reference quantity, the reference weight can also be entered directly. No optimisation is required.

- Enter the reference weight in g using the numeric keypad.
- Press the  key.
- ✓ The count function is launched using the reference weight entered.
- ✓ The quantity is displayed.

8.6 Ending the count operation

- Pressing   or   ends the count operation.
- ✓ The count function ends and the total weight is displayed. If a tare is set, the net weight is displayed.

Alternatively, the count function can be cleared by pressing the  key twice. This also clears all other functions, however, such as tare and preset tare. The message **CLFUNC** appears on the display.

If, having ended the function, you wish to count again using the reference weight last used, the reference weight may not be re-entered.

- Add parts without entering a new reference weight.
- Press the  key.
- ✓ The quantity is displayed.

8.7 Querying values

- Pressing   or   displays the reference weight in g.
- ✓ **REF.WGT** (reference weight)
- ✓ **124672**
- If the optimisation process has not been completed, the optimum quantity is displayed and further optimisation is possible.
- ✓ **oPT.QTY**
- ✓ **1027**

8.8 Example of use

8.8.1 Counting items in a container

- Place the container with the items on the weighing platform.
- Enter the container weight and press .
- ✓ The weight of the container contents is displayed along with the PT symbol.
- Tare the container by pressing .
- Remove a number of items, e.g. 3.
- Enter the number of items removed and press .
- ✓ The number of items removed is displayed, in this example -3.
- Place the items back in the container.
- Cancel the tare by pressing  .
- ✓ The number of items in the container is displayed.

9.1 Function

The accumulator function adds weight values and, if active, weighed quantities in an accumulation memory. A total of ten accumulation memories are available.

The memory can be selected prior to using the accumulator function. Values are accumulated to this memory until such time as a new memory is selected. The name of the accumulation memory consists of a maximum of six characters, e.g. an article number. If no memory is specified, the preferred memory 0 is used.

The cumulative totals in the individual memories can be queried at any time.

The memories can be erased individually on printout of the total. It is also possible to erase all the memories at once.

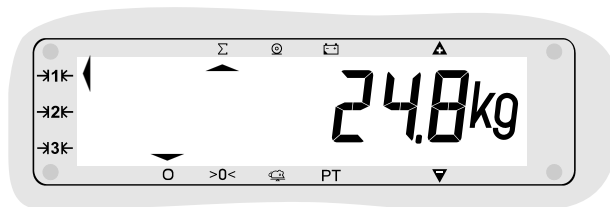
Setting the accumulator function can be performed by your service partner.

9.2 Accumulator function display

When one or more accumulation memories are active an indicator arrow appears below the accumulator symbol Σ .

Display

The accumulator function is active.
At least one accumulation memory contains data.



9.3 Memory accumulation

Display	Explanation
1390kg	→ Add weight
123	→ Enter the memory name using the numeric keypad, e.g. 123 If no memory name is entered, the value is added to preferred memory 0 or the memory last used.
123	→ Press the accumulate key (+) Depending on which mode has been set, one of the following values is displayed: Number of additions (number of times a value is added to the total), gross, net, quantity or memory name If none of these modes has been set, the display does not change when accumulating. The mode can be set by your service partner.
1390kg	✓ The weight value is displayed and the indicator arrow appears below the accumulator symbol.

- When the gross weight on the display is zero, *ERR.SUM* appears on the display and no accumulation takes place.
- A weight value that remains unchanged cannot be accumulated twice into the same memory. This prevents the same value being added to the total twice by mistake. *ERR.SUM* appears on the display. An identical weight value can, however, be accumulated into a different memory.
- If ten accumulation memories already exist, the message *ERR.200* is displayed if you attempt to create another one.

9.4 Displaying totals

Display	Explanation
	→ Press the i + keys. ✓ Information on the current accumulation memory (the one last used) is displayed in sequence. If no memory exists, <i>No Tot</i> appears on the display. or → Enter the memory name using the numeric keypad. → Press the i + keys. ✓ Information on the memory entered is displayed in sequence. If the memory does not exist, <i>No MEM</i> appears on the display.
<i>123</i>	
<i>MEMORY</i> <i>123</i>	✓ The memory name is displayed
<i>ADDNS</i> <i>5</i>	✓ The number of additions (values added) to the total is displayed
<i>GROSS</i> <i>6.720</i>	✓ The gross total is displayed
<i>NET</i> <i>3.195</i>	✓ The net total is displayed
<i>PIECES</i> <i>100</i>	✓ If quantities have also been accumulated, the total quantity is also displayed.

- If you wish to accumulate values to a different memory, enter the name of the memory before using the accumulator function.
- If the function 'auto subtotal printout' has been activated, the subtotal is printed out each time the total is accumulated. Activation of this function can be performed by your service partner.

9.4.1 Custom configurations

If the indicator is connected via an interface to another data processing device (computer, barcode reader, etc.), the name of the accumulation memory may also have been set by this device. In this case names consisting of more than six characters are possible and may include letters as well as numbers.

If the name has more than six characters, only the last five are displayed together with an arrow symbol.

The arrow symbol indicates that additional characters exist but cannot be displayed.

Example: Accumulation memory name = 12345678 Display = *45678*

9.5 Printing totals

9.5.1 Printing individual memories

An accumulation memory can be printed out at any time.

Display	Explanation
123	→ Enter the memory number using the numeric keypad. → Press the $\odot$ key. ✓ The content of the memory is printed. ✓ The following ticker message appears <i>ERASE MEMORY</i> If the 'auto memory erase' function has been activated, the memory is automatically erased on printout and no message appears. The other memories are not affected. Activation of the 'auto memory erase' function can be performed by your service partner.
No YES	→ Select using the $\odot \uparrow$ and $\odot \downarrow$ keys and confirm with $\odot \leftarrow$ or $\leftarrow$: If YES: the accumulation memory just printed is erased, the remaining memories remain unaffected. If No: no accumulation memories are erased.

- If the 'auto subtotal printout' function has been activated, the subtotal is printed out each time the total is accumulated. Activation of this function can be performed by your service partner.

9.5.2 Printing all memories

A totals print ticket for all accumulation memories can be printed out at any time.

Display	Explanation
1235kg	→ Press the $\odot$ for 3 seconds. ✓ The content of the individual accumulation memories is printed. ✓ The total value of all memories is printed. ✓ The following ticker message appears <i>ERASE MEMORY</i> If the 'auto memory erase' function has been activated, all memories are automatically erased and no message appears. Activation of the 'auto memory erase' function can be performed by your service partner.
No YES	→ Select using the $\odot \uparrow$ and $\odot \downarrow$ keys and confirm with $\odot \leftarrow$ or $\leftarrow$: If YES: all memories are erased and the indicator arrow below the Σ symbol goes out. If No: no accumulation memories are erased.

9.6 Erasing all memories

Display	Explanation
	→ Press the $\frac{C}{AC}$ $+$ keys.
	✓ The following ticker message appears: <i>ERASE MEMORY</i>
<i>NEIN</i> <i>JA</i>	→ Select using the $\odot \uparrow$ and $\odot \downarrow$ keys and confirm with $\odot \leftarrow$ or $\leftarrow \odot$: If <i>YES</i> : all memories are erased and the indicator arrow below the Σ symbol goes out. If <i>NO</i> : no memories are erased.

- On printing the final total in an accumulation memory, that memory can be erased individually.

10.1 Overview

If the indicator is correspondingly equipped and configured, weighing results can be sent to a printer or other device such as a PC or a remote display.

As well as various standard print tickets, custom printouts with special formatting or automatic data outputs can be created.

Please contact your service partner for advice on how to set up the indicator and create custom formats.

10.2 Initiating the print process

10.2.1 Printing the current value

Action	Key	Display
Place load on the weighing platform		33.7kg
Initiate the print process		33.7kg



The ticket is printed. During printout the indicator arrow  appears under the print symbol  on the display. Depending on the indicator configuration, the ticket is printed either once or several times (as many as 10).

The format of the data printed is dependent upon the configuration and the indicator functions in use. Net and tare values, for example, are printed out only if the tare has been set. Print tickets can be output in the following form, for example:

Simple weighing operation:

No.	249	16.01.2007	14:04
Gross			33.7 kg

Weighing with set tare:

No.	249	16.01.2007	14:04
Gross			33.7 kg
Tare			11.2 kg
Net			22.5 kg

If the printer or the data processing device is not ready, an error message can be displayed after a brief interval.

See Chapter 17 "Messages and errors" on page 61.



10.2.2 Custom print tickets

In addition to data, user-defined print tickets can also contain input options for variables or weighing functions.

If the device includes custom print tickets, they have been set up according to the individual requirements of the weighing operations to be performed. The many configuration options cannot be described here.

For complex operating procedures, an additional quick user guide is enclosed with the device.

10.2.3 Printing totals

The printing of accumulation memories is described at Chapter [9.5 "Printing totals" on page 39](#).

10.3 Printer types and print tickets

Standard print tickets are available for various printer types. The format changes according to the type selected, but the information printed is always the same.

Printer connection and print format adjustment can be performed by your service partner.

10.3.1 Custom print tickets

In addition to data, user-defined print tickets can also contain input options for variables or weighing functions.

If the device includes custom print tickets, they have been set up according to the individual requirements of the weighing operations to be performed. The many configuration options cannot be described here.

For complex operating procedures, an additional quick user guide is enclosed with the device.

11.1 Device clock

Depending on the features available, the indicator has an integral clock that is guaranteed to carry on functioning by battery even when the device is switched off.

The time and date therefore remain correct even if the power supply was turned off.

The clock is factory set.

11.2 Changing the time and date

11.2.1 Menu structure

The menu for setting the time and date has the following structure:

...	
CLoCK	Clock
dATE	Date
23.10.06	Enter the date (DD.MM.YY))
TIME	Time
09.35.18	Enter the time (HH.MM.SS)
...	

If the menu item `CLoCK` does not appear, the device is not equipped with a clock.

11.2.2 Menu table

Action	Key	Display
Press the menu key		
Select the menu item <i>CLoCK</i>	↑ or ↓	<i>CLoCK</i> Clock
Confirm by pressing ↵	↵	<i>DATE</i> Date
To set the date, confirm with ↵.	↵	<i>23.10.06</i> DD.MM.YY
If you don't want to change the date, you can scroll straight to <i>TIME</i> using the ↓ key.		
The entry position flashes and the value can be changed using the arrows. Confirm the selected value by pressing ↵ each time.	↑ or ↓ Confirm by pressing ↵ Return with ←	<i>23.10.06</i> DD.MM.YY
On confirmation of the year the setting is complete and the next menu level is displayed.	N	<i>TIME</i> Time
To set the time, confirm with ↵.	N	<i>09.35.18</i> HH.MM.SS
The entry position flashes and the value can be changed using the arrows. Confirm the selected value by pressing ↵ each time.	↑ or ↓ Confirm by pressing ↵ Return with ←	<i>09.35.18</i> HH.MM.SS
On confirmation of the seconds the setting is complete and the next menu level is displayed.	↵	<i>DATE</i> Date
Exit the menu by pressing the menu key.	↵	

12.1 Prerequisites

The indicator's alibi memory is available only if it has been configured on the device. If an optional memory expansion card is used, the memory capacity increases to twice the number of potential records. Please contact your service partner for advice on how to install the memory card and configure the alibi memory.

12.2 Stipulations

- Legal-for-trade weighing results must be stored in line with the requirements of the regulations for verification whenever receipts etc. are created using an additional device (e.g. a computer) that is exempt from the verification regulations.
- The stored weighing results and the receipts etc. must have an unambiguous means of identification that enables them to be compared and checked.
- For use in Germany, the receipts etc. must contain an additional reference to the fact that the weighing results can be compared with and checked against the weighing results stored in line with the requirements for verification. Gist: "Verifiable data can be inspected".
- The retention period for stored weighing data is determined by the regulations for verification or the terms and conditions of business of the user.

12.3 Operation

Once the alibi memory is activated, a record is automatically created in the memory each time a standard print ticket is issued (apart from data record "EDP 2") or data is transferred to a computer for this purpose.

Depending on the configuration, the record contains the following values: **Ser. No. - Range - Net** or

Ser. No. - Date - Time - Range - Gross - Tare 1 - Tare 2 - PT - Net

The **serial number** is used to unambiguously identify records. It is specified for searching records in the alibi memory. Searching by time and date is not possible.

If the alibi memory has been set up, it can be accessed via the menu. Some menu items are accessible by password only. These settings can be changed by your service partner on request.

12.4 Menu structure

		
	ALIBI	
	DISPLAY	Display of an alibi memory record
	PRINT	Output of alibi memory records on a printer
	STATUS	Information on the alibi memory
	FREMEM	Indication of free memory space in %
	MAXMEM	Indication of the maximum number of records
	TIME	Set data retention period (password required)
	AUTO	Set mode (password required)
	CLEAR	Delete stored values (password required)
		

12.5 Menu table

12.5.1 Displaying stored records

The print ticket or data record sent to a computer contains the weighing serial number. The record stored with this number can be displayed.

Action	Key	Display
Enter menu.		
Select alibi memory menu item		ALIBI Alibi memory
Confirm selection.		dISPLy Display
The ticker text SERIAL NUMBER appears followed by a flashing number.		123
Enter the serial number you wish to search for and confirm.		123
If a record with this number is found, the following information is displayed in sequence:	Confirm with	
Date of weighing. The date flashes until the indication is confirmed.		dATE 12.10.06
Time of weighing		TIME 14.23
Weighing range		RGE: 1
Gross weight		GROSS 4.2600
Tare value 1		TARE 1 0.4600
Tare value 2		TARE 2 0.585kg
Preset tare PT		PT 0.000kg
Net weight		NET 3.125kg
All information has been displayed.		dISPLy
Exit the menu and return to standard operation. Indication of weight.		0.000kg



Depending on the configuration, the number of values displayed in a record can vary.
Displayed are either **Range - Net** or
Date - Time - Range - Gross - Tare 1 - Tare 2 - PT - Net

12.5.2 Printing stored records

The contents of the alibi memory can be output to a printer or a computer, for example.

Action	Key	Display
Enter menu.		
Select alibi memory menu item.	Several times 	<i>ALIBI</i> Alibi memory
Confirm selection.		<i>DISPLAY</i> Display
Select print alibi memory records.		<i>PRINT</i> Print
Confirm selection.		<i>ALL</i>
Selection <i>ALL</i> : Prints all alibi memory records. Selection <i>NEW</i> : Prints all new alibi memory records added since the last time the records were printed.	 or 	<i>ALL</i> <i>NEW</i>
Confirm selection.		<i>INTER.1</i>
Selection <i>INTER.1</i> : printout via interface 1.	 or 	<i>INTER.1</i> <i>INTER.2</i>
Confirm selection. The data is printed via the selected interface.		--
On completion of printing the previously selected menu item is displayed.		<i>ALL</i>
Exit the menu and return to standard operation. Indication of weight.		<i>0.0000kg</i>

Messages

Display	Meaning
<i>NOT FOUND</i> Not found	The serial number entered does not exist. Cause: - The record has been deleted. - The record has been overwritten. - The number was entered incorrectly.
<i>NO ENTRIES</i> No entries	No (new) records are available in the alibi memory.

12.5.3 Querying the status

The status display function can be used to ascertain the amount of available memory space.

Action	Key	Display
Enter menu.		
Select alibi memory menu item.	Several times 	ALIBI Alibi memory
Confirm selection.		dISPLy Display
Select status menu level.		STATUS Status
Confirm selection.		FREMEM Free memory
Confirm selection. The available memory space is displayed in %.		56.74 %
Confirm indication.		MAXMEM Maximum memory
Confirm selection. The maximum number of alibi memory records is displayed. (With memory expansion card 72080 or 270303)		36044 or 135168
Confirm indication.		TIME Time
Exit the menu and return to standard operation. Indication of weight.		0.000kg

13.1 Prerequisites

The indicator's ANIMAL WEIGHING function is available only if it has been activated and set up. Please contact your service partner for advice on how to set up and configure the ANIMAL WEIGHING function.

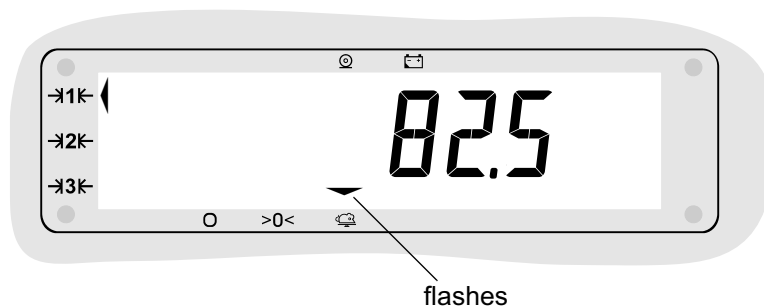
13.2 Function

The animal weighing function allows the user to ascertain the weight of live animals. During the *measuring phase*, weight values are continuously captured and the results obtained used to calculate the actual weight.

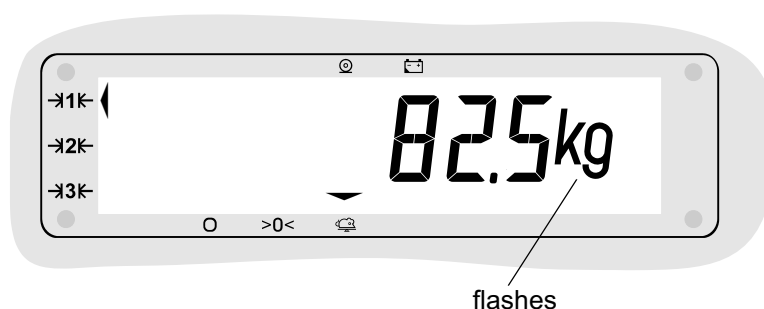
13.3 Animal weighing display

During the animal weighing *measuring phase*, the indicator arrow above the 🐾 symbol flashes and the unit of weight is hidden.

Animal weighing active



On completion of the measuring phase, the weighing result is shown with a flashing unit of weight for the duration of the display. The indicator arrow above the 🐾 symbol is visible for the duration of the display. Depending on the setting, a print ticket can also be output.



If a stable indication cannot be obtained, the weighing operation must be repeated.

13.4 Operation

Action	Key	Display
Place the animal on the weighing platform. (The animal must be completely on the weighing platform.)		82.5kg
Start animal weighing. The indicator arrow above the  symbol flashes. The unit of weight is hidden.		82.5
On completion of the measuring phase, the weighing result is shown with a flashing unit of weight for the duration of the display. The indicator arrow above the  symbol is visible for the duration of the display. Depending on the setting, a print ticket can be output. If a stable indication could not be obtained, the message „Nä5TARJ“ (not stable) appears on the display. The weighing operation must be repeated.		82.5kg

14.1 Prerequisites

Indicator VARIABLES are available only if they have been set up and configured.
Please contact your service partner for advice on how to set up and configure VARIABLES.

14.2 Function

Variables can be used to add information to a print ticket or a data record sent to a computer that renders the weighing operation uniquely identifiable or permits an assignment to a specific category (e.g. customer, article, order or traceability numbers, employee ID numbers, scanned barcodes).

Variables can also contain values used as function parameters.

14.3 Variable prompts

If the device includes variables, they were set up according to the individual requirements of the weighing operations to be performed. The many configuration options can be described here only by way of a few examples.

For complex operating procedures, an additional quick user guide is enclosed with the device.



In most cases variables are prompted before a print ticket is output or a data record sent to a computer.

This is initiated by pressing the print key (⊙).

The name of the variable to be entered appears briefly on the display and a value can then be entered.

With keypad entry, numbers and a decimal point can be entered.

With barcode reader entry, numbers and letters can be entered.

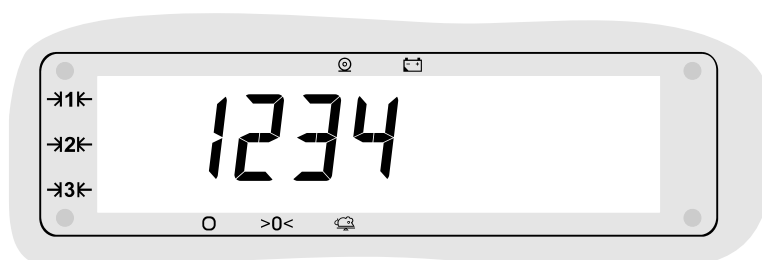
Example:

Entry of an article number

Variable name is displayed briefly



Entry of article number (keypad or barcode reader)



On confirmation of the entry, the value is added to the variable and can be included on the print ticket or in the data record sent to a computer.

If several variables have been created, additional values are prompted consecutively.

14.4 Default value

Variables can contain a default value that is the first value loaded into the variable on device power up.
This default value can be accessed via a menu and edited.



Changes may be made only to the variables that crop up in the weighing operation. If other variables have been created for device functions, their default values may not be changed.
Please contact your service partner if in doubt.

14.5 Editing default values

14.5.1 Menu structure

The menu for setting default variable values has the following structure:

....	
VARIA	Variable
ARTNo	Name of the variable (according to the configuration)
1234	Default variable value (according to the configuration)
....	Any other variables (according to the configuration)
....	
....	

If the menu item **VARIA** does not appear, no variables have been created on the device.

14.5.2 Menu table

Action	Key	Display
Press the menu key		
Select the menu item VARIA .	↑ or ↓	VARIA Variable
Confirm by pressing The name indicated here ARTNo is an example. The actual display depends on the names given to the available variables.		ARTNo Article number
If several variables are available, select the desired variable using the ↑ or ↓ keys. To set the selected variable, confirm with .		1234 Default variable value
The current value is displayed. Enter value and confirm by pressing .	 	1234
If several variables have been created, the name of the next variable is displayed (e.g. customer)		CUSTOM
Exit the menu by pressing the menu key.		

15.1 Prerequisites

The indicator's digital outputs are available only if they have been configured on the device. Please contact your service partner for advice on how to install and configure the digital outputs.

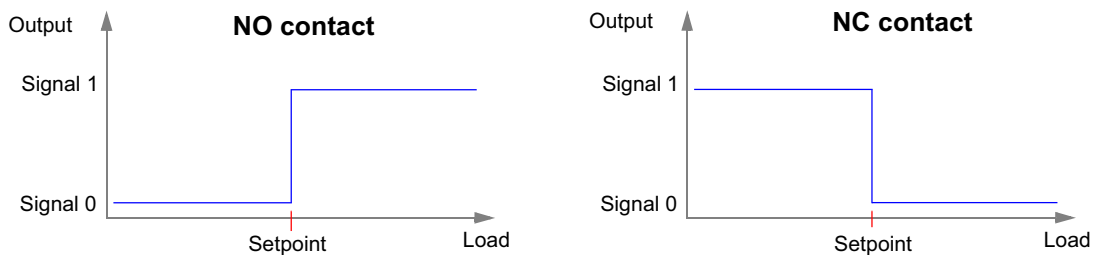
15.2 Properties

- The indicator has two outputs to which various properties can be assigned.
- According to the configuration, the outputs assume the switching status corresponding to the current weighing instrument status or the current load immediately on device power up. Output activation or deactivation by keypress is not available in the standard function. The selected output switching function is continuously active.
- The switching threshold settings for a setpoint switch or an interval switch are accessible via a menu.

15.3 Output types

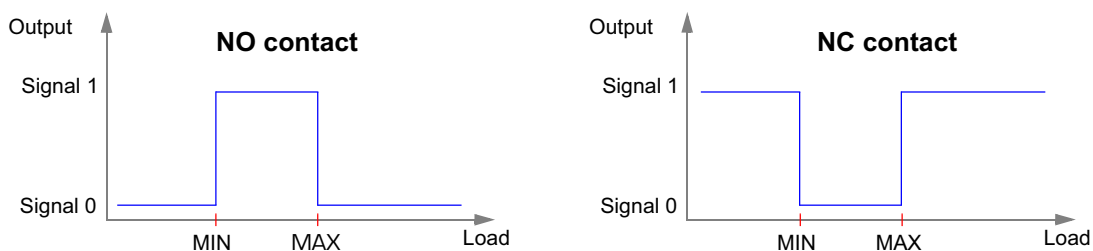
15.3.1 Setpoint switch

The signal from an output changes on reaching a selectable setpoint. The output signals act in accordance with the selected switching behaviour (NC contact/NO contact). The setpoint can be set in the menu.



15.3.2 Interval switch

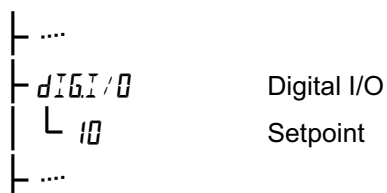
The signal from an output changes on reaching a selectable setpoint range. In contrast to the setpoint switch, two setpoints for a switching range (MIN and MAX) can be entered. The signal from an output is emitted only if the load is within the selecting switching range (between MIN and MAX). The output signals act in accordance with the selected switching behaviour (NC contact/NO contact). The MIN and MAX values can be set in the menu.



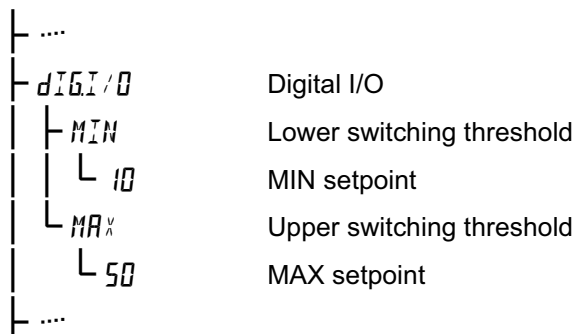
15.4 Menu structure

The menu structure varies according to the configuration selected.

Menu with a setpoint switch selected:

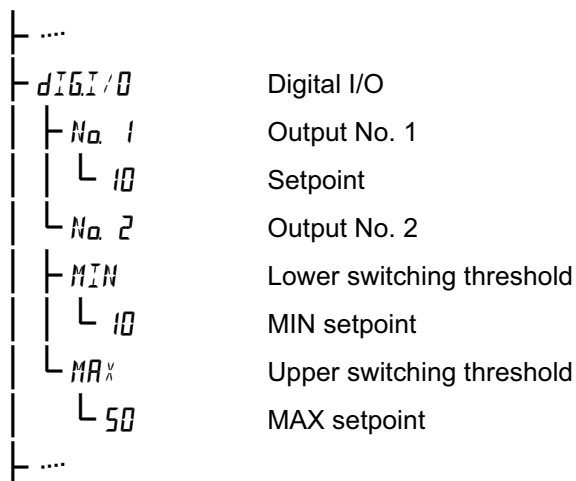


Menu with an interval switch selected:



Menu with two outputs selected.

Example: Output 1 = Setpoint switch. Output 2 = Interval switch



The menu structures shown here are examples and not complete. Additional combination options exist for the switching behaviour of the outputs.

The following rules have been set, however.

- If there is only one output, no output no. selection option appears in the menu.
- A setpoint switch has only one setting option (setpoint).
- An interval switch has two setting options (MIN and MAX).

15.5 Menu table

The setpoints for the available outputs can be set.

Action	Key	Display
Enter menu.		
Select menu item digital I/O		dI G.I / O Digital I/O
Confirm selection.		No. 1 Output No. 1
Select the output to be set. If there is only one output, this selection option does not appear; only the settings for this output are displayed. In conjunction with a setpoint switch, the setpoint is displayed immediately; in conjunction with an interval switch, a choice of MIN/MAX appears.		No. 2 Output No. 2
Confirm selection.		
If output no. 1 is selected (in this example set up as a setpoint switch) the selected setpoint is displayed.		100
Enter value and confirm.	 Confirm with	200
If output no. 2 is selected (in this example set up as an interval switch) the choice of MIN/MAX appears. Select the desired parameter.		MIN MIN MAX MAX
Confirm selection. The selected setpoint is displayed. (according to whether MIN or MAX has been selected)		100
Enter value and confirm. The setpoint for MIN must always be smaller than the setpoint for MAX. If MIN is greater than MAX, the output will not switch.	 Confirm with	200
The next parameter appears. Make more settings, if required.		MAX MAX
Exit the menu and return to standard operation. Indication of weight.		0.000kg

16.1 Properties

The indicator's statistics function is available only if it has been configured on the device. Please contact your service partner for advice on how to configure the statistics function.



16.2 Method of operation

Packaged products must comply with specific net quantity requirements.

The statistics function permits product weights to be measured and assessed in accordance with the relevant weights and measures regulations for packaged goods.

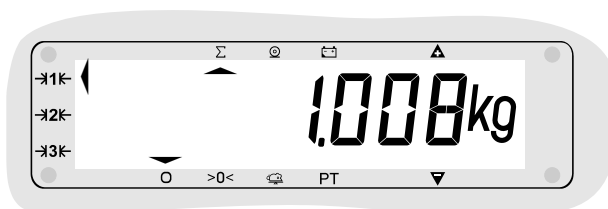
Monitoring and evidence of compliance with the required tolerance limits is provided by statistical analysis.

16.3 Statistics function display

When one or more samples have been measured, an indicator arrow appears below the Σ accumulator symbol.

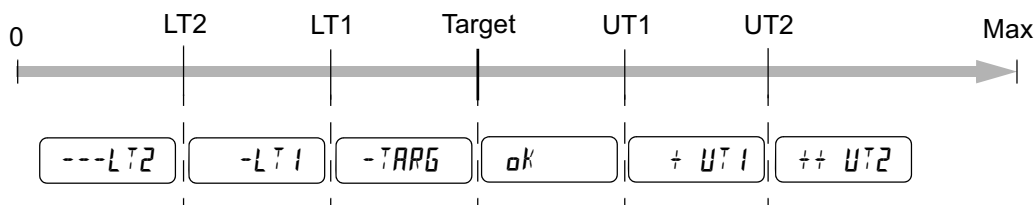
Display

The statistics memory is active.
At least one sample has been logged to the statistics memory.



Messages on the display

The weight values of the weighings logged to the statistics memory are compared with the tolerance limits specified for the product. The result of the evaluation is indicated as follows according to the tolerance limit exceeded, if any:



16.4 Measuring samples

Display	Explanation
1.100kg	→ Place product on weighing platform
OK	→ Press the ⊕ key The tare weight stored for the product is set automatically and the sample is evaluated according to the set tolerance limits. The evaluation result appears briefly on the display:
1.000 ^{NET} kg	✓ The net weight value is displayed and the indicator arrow appears below the accumulator symbol.

- If the weight value remains unchanged it cannot be logged to the statistics memory a second time. This prevents the same sample being logged twice by mistake.
ERRSTA appears on the display.

16.5 Printing samples

If a printer is connected, a single-line printout of the weighing result is automatically output for each sample logged to the statistics memory.

A new line is printed for each additional sample measured. The resulting ticket is the log printout for the samples measured.

The printout includes the operation number and the sample weight.

If an upper or lower limit value is exceeded, the relevant tolerance limit is also printed.

0001		1003.0 g
0002		1006.0 g
0003		1002.0 g
0004		1008.0 g
0005		1006.0 g
0006	>UT1	1014.0 g
0007		1008.0 g
0008		1010.0 g
0009	>UT1	1012.0 g
0010		1006.0 g
0011		1002.0 g
0012	<Targ	998.0 g
0013		1004.0 g
0014		1007.0 g
0015		1004.0 g
0016		1008.0 g
0017		1006.0 g
0018		1001.0 g
0019		1005.0 g
0020		1002.0 g

16.6 Displaying the statistics memory

Display	Explanation
1.000 ^{NET} kg	→ Press ⓘ followed by ⊕
SAMPLE 20	✓ The current statistics memory data is displayed. Number of samples measured.
MEAN 1005.60	Arithmetic mean of the sample weights (average weight).
1.000 ^{NET} kg	✓ Once the data has been displayed the current weight value re-appears.

16.7 Printing the final evaluation

Once the last sample has been measured the final statistics memory evaluation can be printed out.

→ Press the  key for 3 seconds

✓ The set product properties are printed out.

✓ Number of samples

✓ Statistical values for the samples measured

✓ Number of tolerance limits exceeded

✓ Result of the evaluation

If the requirements of the relevant weights and measures legislation are met, "ok" is printed as the result.

If the requirements of the relevant weights and measures legislation are not met, "ERROR" is printed as the result.

On printout of the final evaluation the results are cleared from the statistics memory. New samples can now be measured.

The following message is displayed if the statistics memory contains no samples on attempting to print the final evaluation: "No ENTRIES".

```

    ....
0018      1001.0 g
0019      1005.0 g
0020      1002.0 g

Target      1000.0 g
LT1         990.0 g
LT2         980.0 g
UT1        1010.0 g
UT2        1020.0 g
Tare        100.0 g

n           20
mean x      1005.600 g
Std. s      3.8 g
Min         998.0 g
Max        1014.0 g
<LT2        0
<LT1        0
>UT1        2
>UT2        0

Result      : ok
-----

```

16.8 Setting the product properties

Product properties are stored in the device. Each time a sample is measured it is analysed and assessed according to the parameters that have been set. Product properties can be edited via the menu.

16.8.1 Menu structure

```

....
├─ PRod      Product properties
│   ├─ TARGET Target value in grams (nominal quantity)
│   ├─ TARE   Tare weight in grams (weight of packaging)
│   ├─ LT1    LT1 tolerance limit in grams
│   ├─ LT2    LT2 tolerance limit in grams
│   ├─ UT1    UT1 tolerance limit in grams
│   └─ UT2    UT2 tolerance limit in grams
....

```

16.9 Menu table

Action	Key	Display
Enter menu.		
Select the product menu option.		PRod Product
Confirm selection.		TARGET Target
Select the parameters to be set. TARGET = Nominal quantity in grams TARE = Tare weight in grams LT1 = LT1 tolerance limit in grams LT2 = LT2 tolerance limit in grams UT1 = UT1 tolerance limit in grams UT2 = UT2 tolerance limit in grams	 or 	TARGET TARE LT1 LT2 UT1 UT2
Confirm selection.		1000
Change the value and confirm. When changing the target value (nominal quantity), the tolerance limits are automatically recalculated according to the requirements of weights and measures legislation. An entry is required here only if smaller tolerance limits are to be set.	 Confirm by pressing 	2500
The next parameter appears. Make more settings, if required.		TARE Tare
Exit the menu and return to standard operation. Indication of weight.		0.000kg

17.1 Messages

Display	Cause of error
ERR200	Cannot accumulate Ten accumulation memories already exist. No more accumulation memories can be created. Memory accumulation is cancelled.
ERR201	Display overflow during memory accumulation When displaying the subtotal the cumulative sum is greater than 999999 or -99999. The value cannot be displayed. The device can manage and print greater values, however.
ERR210	Product tare value too high Sample cannot be stored in the statistics memory. The tare value entered for the product is greater than the load on the weighing platform. Net values are negative.
ERR220	Cannot count The value entered for the reference quantity or the reference is inadmissible (value must be a number greater than 0). Count function cannot be launched.
ERR221	Cannot determine reference weight The count function with a known reference quantity cannot be launched with an unloaded or tared weighing platform.
ERR222	Display overflow during counting Current quantity is greater than 999999 or -99999.
ERR605	Alibi memory date conflict The date was put back while the alibi memory was active. The current date is younger than the oldest record in the alibi memory. The alibi memory record cannot be added.
ERR606	Alibi memory is full The maximum number of records in the alibi memory has been reached and there are no records that can be overwritten (older than the specified retention period). No more records can be added.
ERR607	Alibi memory is full The maximum number of records in the alibi memory has been reached and the alibi memory has been set so that older records cannot be overwritten. No more records can be added.
ERR608	Invalid date in alibi memory A record in the alibi memory contains an invalid date (outside the valid format). Check time and date settings (clock may be defective).
ERR609	Alibi memory change The size of the active alibi memory has changed. An option board was removed or added without resetting the memory.
ERRRGE	Preset tare value too high The preset tare is greater than the weighing range.
ERRLCK	Preset tare disabled If the indication is tared upon entry of a preset tare, changing the preset tare is no longer permitted. The tare value must be cleared first.
ERRSTA	Cannot save sample to statistics memory Two consecutive samples cannot be included in the statistics without a change in load.

Display	Cause of error
No ENTRIES	Cannot evaluate statistics The statistics memory is empty; no samples have been entered.
ERRSUM	Memory accumulation not permitted Two consecutive accumulations to the same memory are not permitted without a change in load. Memory accumulation is not permitted with the weighing instrument at no load
NoSMEM	Accumulation memory does not exist A non-existent memory name was entered for displaying the subtotal.
No Tot	No accumulation memory available No cumulative totals can be displayed.
INCORRECT dongLE	Incorrect dongle (Dongle = identification device in the terminal box) The current dongle number is not the same as the number identified and stored on adjustment. The terminal box has been replaced. A different weighing platform has been connected. The weighing instrument may not be used in legal-for-trade applications.
VERIFICA TION SEAL dESTROYEd	Verification seal destroyed The electronic verification seal has been destroyed. The weighing instrument is no longer verified and may not be used in legal-for-trade applications.
UNLoAd	Unload On initial or manual zero setting the load on the weighing instrument is greater than the permissible zero setting range. Unload the weighing instrument and set to zero again.
ERzERo Flashing indication on power up.	Zeroing unsuccessful. Initial zeroing could not be performed. The load on the weighing instrument is greater than the permissible zeroing range. The message is displayed briefly and then the weight value flashes on the display. Unload the weighing instrument and set to zero again.
ERRCoM	Interface error, no data transfer possible. (Receiving device incorrectly set or switched off.)

17.2 Error messages

Display	Cause of error
ERR.102	Main memory error Switch device off and back on again.
ERR.104	AD value error Incoming AD values are too small or too large. Check load cells and connection.
ERR.123	Negative reference and signal values Load cell incorrectly connected. Check load cells and connection.
ERR.124	Reference value too small Reference lead not connected. Check load cells and connection.
ERR501	No feed voltage Feed voltage to the measuring cell too small (short circuit). Check load cells and connection.
ERR602	Clock defective Device clock (if present) not detected on power up.
ERR603	AD converter failure AD converter no longer supplying measured values. Switch device off and back on. If the message is displayed again, the AD converter is defective.

Enclosure	
Stainless steel enclosure	In chromium-nickel steel 1.4301
Weight	approx. 2.3 kg
Dimensions	311 mm (L) x 173 mm (H) x 85 mm (W) Cable egress at top or bottom depending on setup Mounting brackets on rear

Keypad	
Keypad	Membrane keypad, 24 keys, some with multiple assignment. Service life > 10 ⁶ keypresses.
Material	Polyester
Resistance	To most common substances

Display	
Weight display	14-Segment LC display, 28 mm character height, backlit
Status display	Via indicator arrows for range, zero position, tared, active function.

Ambient conditions	
Immunity to interference	EN 45501
Emitted interference	EN 55011, Class B
Working temperature	-10 °C to +40 °C
Storage temperature	-20 °C to +65 °C
Humidity	max. 85 % non-condensing
Degree of protection	IP 67, tested to EN 60529 (dust, contact and water jets)

Electrical connection	
Power input	max. 15 VA, typically 10 VA
Mains plug	2 m power cord
Mains voltage	230 VAC -15 % to +10 %
Mains frequency	50 / 60 Hz +5 %
Battery operation (optional)	10.5 - 24 VDC Standby after 2 minutes of inactivity Shutdown after 30 minutes of inactivity Undervoltage detection and display below 10.5 VDC Over-discharge protection by device shutdown.

Load cell connection	
Measured value input	1 measured value input
Minimum connection resistance	$\geq 40 \Omega$
Feed voltage	5 VDC
Characteristic value	Max. + 3.0 mV/V
Measuring line	6-pole, with sense line, total shield, max. 54.2m/mm ²
Approved for	Load cells in accordance with OIML R60

Analogue-to-digital converter	
Sensitivity	$\geq 0,3 \mu\text{V/e}$
Input signal	Max. + 15 mV
Conversion time	20, 40, 80, 160 ms
Internal resolution	Approx. 4 200 000/10mV/160ms
Settling time	0.5 - 3 s
Damping	Digital filter
Connection	6-conductor cable

Weighing range and scale interval	
Resolution	Class  $n \leq 10.000 e$ Class  1000 e
Single-interval instrument	$n \leq 10.000 e$
Multiple-range instrument	$3 \times n \leq 6000 e$
Multi-interval instrument	$3 \times n \leq 6000 e$
Non-verifiable	$n \leq 100,000 d$
Weighing range	1 kg to 900,000 kg, user-selectable
Scale interval	1; 2; 5; 10; etc., selectable from 0.0001 kg to 2000 kg
Weighing error	To E09 and OIML Class  and 
Underload/overload display	> 9 d

Adjustment program	
Adjustment	2 - 5 user-selectable adjustment points
Linearisation	Curve correction
g-value correction	Via entry of g-value
Adjustment correction	Reset adjustment points Shift of existing adjustment points by re-entry of weight value.
Manual entry	Entry of adjustment points (load and AD value)
Zero point	Adjustable without complete re-adjustment.

Weighing program	
Initial zero reset	-5 % to +15 % of the weighing range
Zero setting	-1 % to +3 % of the weighing range for zero setting and zero tracking
Zero tracking device	Zero point tracking on deviation < 0.5 d. Selectable from 0.25 d/s to 0.5 d/s. With deactivate function. Gross and net zero tracking. Automatic zero setting.
Stability control device	For zero setting, taring, summing and printing. Represented on the display via indicator symbol.
Data storage	Long-term storage by EEPROM and data flash.
Data memory	For adjustment data, configuration and data obtained during weighing.
Digital filter	Adjustable to ambient conditions. To be tightened on verification.

Interfaces	
For computers, SPC, printers, remote displays or controlling the indicator.	
RS232/V24	2 nos. (standard), max. 20m transmission distance
Properties	full duplex, permanently enabled or enabled on request
Transmission rates	User selectable (600 to 38,400 baud)
Protocols	Hardware handshake (CTS/RTS) or software handshake (XOn-XOff)
Data bits	7 or 8
Parity	Even, odd, none
Stop bits	1 stop bit
Standard settings Interface 1 + 2 = RS232	Baud rate: 9600 Data bits: 8 Parity: none Stop bits: 1 Handshake: Hardware

Plug-in cards	
Only one of the following cards can be installed.	
Alibi memory	Memory expansion by 36,000 additional records.
Ethernet network card	For connecting to PC networks.
Profibus network card	For connecting to control networks.
Analogue output with RS422/RS 485 interface	User-selectable voltage or current output and ranges. 0 - 20 mA; 4 - 20 mA 0 - 5 V; 0 - 10 V User-selectable interface type and transfer parameters.
Printing	
Printer types	Roll, label and forms printers (Epson-compatible line printers) Custom printers on request
Connection	Via serial interface
Print options	Serial number, date, time, range, gross, net, tare weights, quantity, unit weight, reference quantity. Net, gross, tare and quantity subtotals and totals, number of memory additions.
Print tickets	Self-generating according to functions in use
Headers and footers	User selectable
Custom print tickets	User selectable
Automatic data output	Via serial interface
Memories	
Tare memories	1 or 2 tare memories for containers (T1) and weighed product (T2), together max. 100%.
Accumulation memory	10 memory locations with user name selection for net, gross, tare 1, tare 2, manual tare and quantities. Addition counter. Largest-possible value and printout: 10 digits.
Variables	10 variables with entry option for weighing operation identification or weighing parameter memory.
Data memory alibi memory	For 36,000 records.
Miscellaneous	
Clock	Battery-buffered real-time clock, battery life approx. 15 years.
Dongle	Electronic device in the terminal box. Automatic weighing platform detection by transmission of an identification number. Permits verifiable connection of the weighing platform via plug-in connector.

19.1 Declaration of conformity for verifiable weighing instruments

This declaration of conformity applies only in conjunction with a certificate of conformity issued by a named body.



KONFORMITÄTSERKLÄRUNG

Declaration of conformity
Déclaration de conformité

Die nichtselbsttätige Waage oder
The non-automatic weighing instrument or
L'instrument de pesage à fonctionnement non automatique ou

Hersteller: <i>Manufacturer:</i> <i>Fabricant</i>	RHEWA-WAAGENFABRIK August Freudewald GmbH & Co.KG Postfach 10 01 29 D-40801 Mettmann		
Typ: <i>Type:</i> <i>Type:</i>	82basic 82comfort		
Bauartzulassung für EG: <i>Type-approval for EC:</i> <i>D'approbation pour CE:</i>	NMI T5646 NMI TC7033		
Fabriknummer: <i>Serial number:</i> <i>Numero de série:</i>	070000 - 079999 080000 - 089999 090000 - 099999 100000 - 109999	110000 - 119999 120000 - 129999 130000 - 139999 140000 - 149999	150000 - 159999 160000 - 169999 170000 - 179999 180000 - 189999

entspricht dem in der Bescheinigung über die Bauartzulassung beschriebenem Baumuster, sowie den Anforderungen der EG-Richtlinien (in den jeweils geltenden Fassungen):

corresponds to the production model described in the type-approval certificate and to the requirements of the Council Directives (as amended):

correspond au modèle décrit dans le certificat d'approbation de type, aux exigences de la directives (modifiée):

2006 / 95 / EG
90 / 384 / EWG
2004/ 108/ EG

Angewandte Normen:	EN 61000 – 3 – 3	EN 55022
<i>Directives:</i>	EN 61000 – 6 – 2	EN 45501 – 1992
<i>Directives:</i>	EN 61000 – 6 – 3	

RHEWA-WAAGENFABRIK
A. Freudewald GmbH & Co.KG

Unterschrift:

Signature: i. V.
Signature:

Datum: 08.01.2013

Date:

Date:

19.2 Declaration of conformity for non-verifiable weighing instruments



Die Waage
The weighing instrument
L'instrument de pesage

Hersteller: <i>Manufacturer:</i> <i>Fabricant</i>	RHEWA-WAAGENFABRIK August Freudewald GmbH & Co.KG Postfach 10 01 29 D-40801 Mettmann		
Typ: <i>Type:</i> <i>Type:</i>	82basic 82comfort		
Fabriknummer: <i>Serial number:</i> <i>Numero de série:</i>	070000 - 079999 080000 - 089999 090000 - 099999 100000 - 109999	110000 - 119999 120000 - 129999 130000 - 139999 140000 - 149999	150000 - 159999 160000 - 169999 170000 - 179999 180000 - 189999

entspricht den Anforderungen der EG-Richtlinien (in den jeweils geltenden Fassungen):

corresponds to the Council Directives (as amended):

correspond de la directives (modifiée):

2006 / 95 / EG
90 / 384 / EWG
2004/ 108/ EG

Angewandte Normen:	EN 61000 – 3 – 3	EN 55022
<i>Directives:</i>	EN 61000 – 6 – 2	EN 45501 – 1992 :B3
<i>Directives:</i>	EN 61000 – 6 – 3	

RHEWA-WAAGENFABRIK
A. Freudewald GmbH & Co.KG

Unterschrift:

Signature:

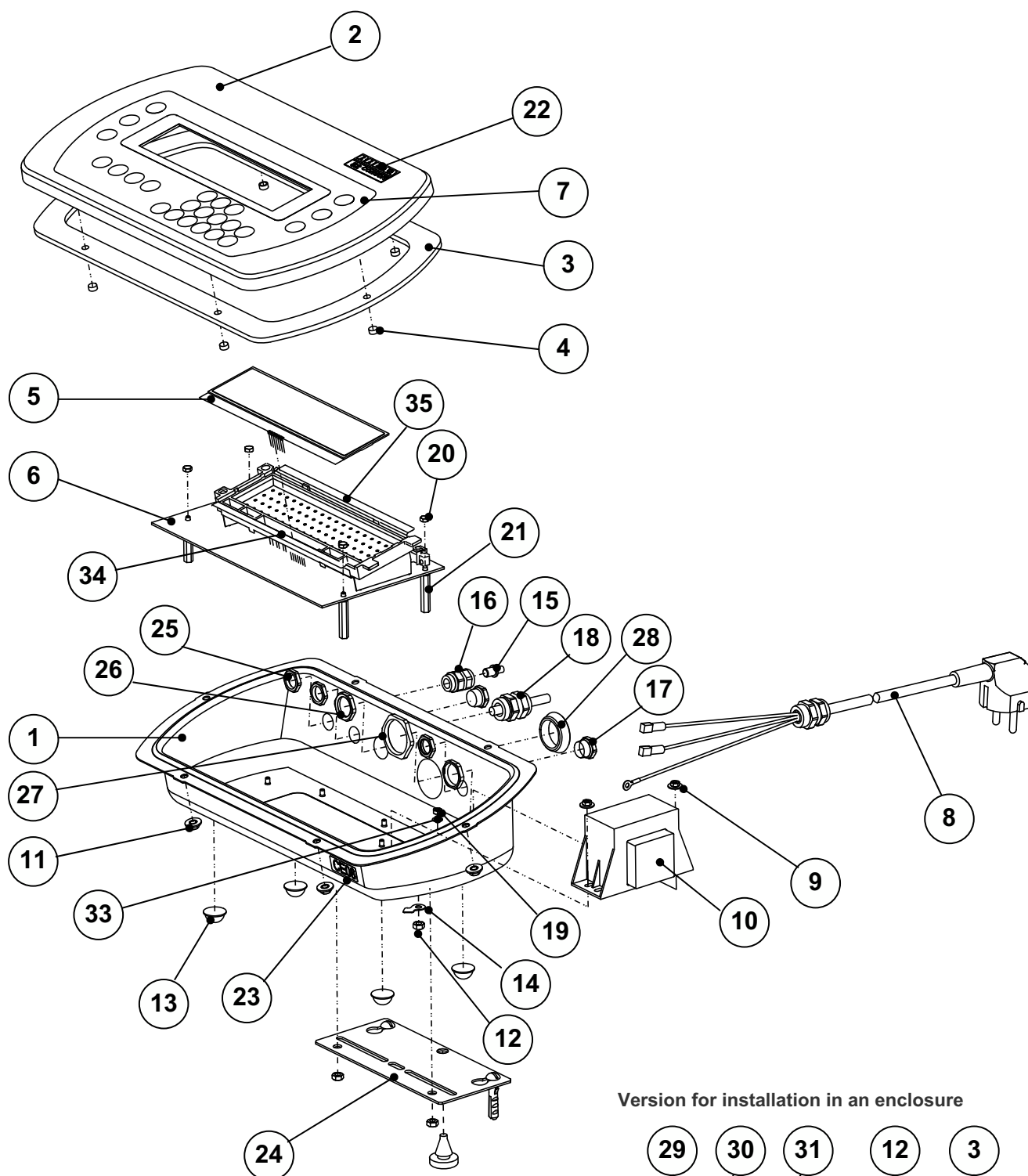
Signature:

i.V.

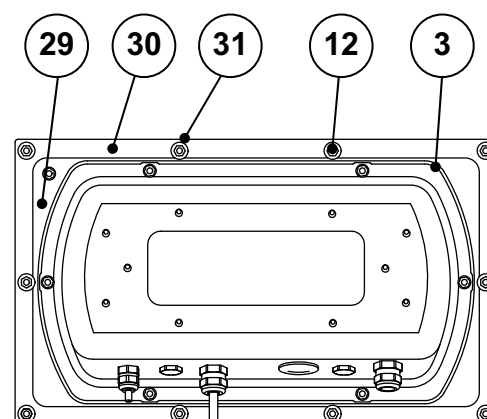
Datum: 08.01.2013

Date:

Date:



Version for installation in an enclosure



The manufacturer's number of the scale must be quoted with every order for spare parts!

Part no.	Qty	ID code	Description
1	1	72157	Enclosure bottom section (please also order part no. 13 and data plate)
2	1	88799	Enclosure top section, complete with part nos. 3, 4, 7 and 22 (please also order data plates)
3	1	68056	Enclosure gasket
4	6	68031	Spacer sleeve
5	1	55079	LC display 82
6	1	68395	Processor board 82comfort with LC display
6.1	1	93153	RPL processor board 82comfort (replacement board)
7	1	60988	Membrane keypad, 82comfort
8	1	67595	Mains lead
9	2	55731	Washer nut, M3
10	1	72298	Transformer, 15V/1A
11	6	86496	Washer nut, M4, nickel-plated brass
12	1-12	75960	Hex nut, M4, nickel-plated brass
13	4	68049	Self-adhesive bumper
14	1-2	39073	Screw-on earth connection symbol
15	1	35022	Sealing plug
16	1	69781	Cable gland, M12x1.5, IP68
17	2	69765	Blanking plug, M12x1.5
18	1	69807	Cable gland, M16x1.5, IP68
19	1	53462	Hex nut, M3, stainless steel
20	4	88682	Nut-and-washer assembly, M3, galvanised
21	4	70151	Spacer bolt, M3x28
22	1	71662	Type label, "82comfort"
23	1	21451	CExx self-adhesive label (specify year)
24	1	72835	Wall-mounting set
25	3	61713	Locknut, M12x1.5
26	2	69211	Locknut, M16x1.5
27	1	72272	Locknut, M25x1.5
28	1	72280	Blanking plug, M25x1.5
33	1	65847	Serrated lock washer, A3,2
34	1	68437	Conductive shielding gasket, 134 mm
35	1	68445	Conductive shielding gasket, 146 mm

Additional boards (not illustrated)

Part no.	Qty	ID code	Description
	1	73007	Ethernet option card for 82b/c/e
	1	73015	Analogue output option card for 82b/c/e
	1	73031	Profibus option card for 82b/c/e
	1	73049	Alibi memory option card for 82b/c/e
	1	85175	High power voltage supply option card for devices with external 12V operation
	1	77198	Universal voltage supply option card for 82b/c/e

Cables (not illustrated)

Part no.	Qty	ID code	Description
			Cable
	1	71027	Measuring cable 5 m without coupler plug for 82b/c/e +84evo
	1	71035	Measuring cable 10 m without coupler plug for 82b/c/e +84evo
	1	71043	Measuring cable 5 m with coupler plug for 82b/c/e +84evo
	1	71050	Measuring cable 10 m with coupler plug for 82b/c/e +84evo
	1	70987	Measuring cable 100 m with coupler socket for 82b/c/e +84evo
	1	70227	0408 coupler plug, 7 way, IP67, for cable diameter 6-8mm
	1	71001	Printer cable for LX 300/LQ 570 for 82b/c/e +84evo
	1	70995	Printer cable for 0235/0274 for 82b/c/e +84evo
	1	71019	Interface cable, 2.4m for 82b/c/e +84evo
		86892	Interface cable, 8 way, 2.4m
	1	75838	0436/7 cable for input/output connection, 7 way, 3 m
			For internal rechargeable battery pack
	1	87692	230V power cable for chargers 0371/82 and 0371/82-2
	1	82008	Flange socket, 3 pin, with cable for internal rechargeable battery operation, 0371/82 (IP67)
	1	94409	Flange socket, 5 pin, with cable for internal rechargeable battery operation, 0371/82 (IP67)

Part no.	Qty	ID code	Description
			For external rechargeable battery operation
	1	37390	Lead for battery unit for external battery operation (0371)
			For additional boards
	1	76976	Profibus cable with D-sub plug, 9 way
	1	76968	Profibus cable with male connector, IP67
	1	61846	Female connector, 5 way, M12, for Profibus (max. cable diameter = 8mm)
	1	76950	Profibus cable with female connector, IP67
	1	61853	Male connector, 5 way, M12, for Profibus (max. cable diameter = 8mm)
	1	61887	Terminator, M12-B, for Profibus cable with female connector, IP67
	1	51250	Network cable, 10m, grey, for Ethernet card
	1	76935	Shield connector, Ethernet, 82
			Fittings
	1	76083	0388 gland enlarger, M16 to M20, for 82 (measuring cable 10-14mm)
	1	53652	0387 M12 threaded pressure vent
	1	75846	Cable gland, M25x1.5, nickel-plated brass, slotted on one side, without gasket for Ethernet card
	1	79996	O-ring, 22x2, NBR, for M25 cable gland for Ethernet card

Internal rechargeable battery pack (not illustrated)

Part no.	Qty	ID code	Description
	1	82529	Rechargeable battery pack, 13.2V/2000mAh - NiMH for 0371/82
	1	82511	Charger with push-pull connector, including power cord, 230V for internal battery operation 0371/82, (3 way male connector, black)
	1	94391	Rechargeable battery pack, 13.2V/2000mAh - NiMH for 0371/82-2
	1	94417	Charger with push-pull connector, including power cord, 230V for internal battery operation 0371/82-2, (5 way male connector, with red colour coding)

Visual signalling device (not illustrated)

Part no.	Qty	ID code	Description
	1	84780	Device top section, complete, 82c/0433 (please also order data plates)
	1	84764	LED indicator lamp, 2 colour, red/green

Audible signalling device (not illustrated)

Part no.	Qty	ID code	Description
	1	83287	0430/1 audible signalling device with 103 dB for 82 b/c

Version for installation in an enclosure

Part no.	Qty	ID code	Description
29	1	88815	Front panel, 82comfort, complete, with part nos. 3, 4, 7, 12, 22, 30 and 31 (please also order data plates)
30	1	75614	Gasket, 82
31	10	29009	Washer, 4.3, DIN 9021 - A2
	1	76182	Drill and saw template

Mounting components (not illustrated)

Part no.	Qty	ID code	Description
	1	74526	0199 bracket, 82, for front mounting weighing platform 032-035
	1	89334	0200/5 stainless steel swivel and tilt wall bracket for indicators
	1	75242	0236 printer bracket for mounting on 82, for printers 0235, 0274

Other spare parts (not illustrated)

Part no.	Qty	ID code	Description
	1	72983	0180/8 cover, 82 (set of 5)

For transport damages please follow hints as mentioned in delivery note!

1. Unwrap weighing system and remove transport belt if applicable.
2. Agree on location for installation. The location should be free from vibration, even and dry. For operation a temperature of -10° up to $+40^{\circ}$ is acceptable. Avoid Electrostatic loadings, if necessary take care for potential equalization. The space for the weighing system must be statically sufficiently dimensioned.

figure 1

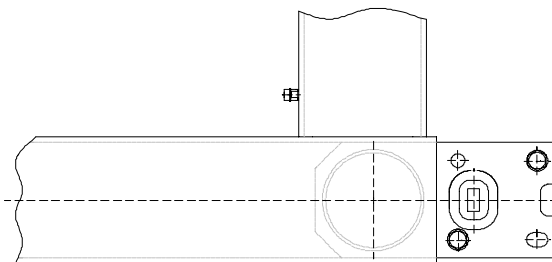
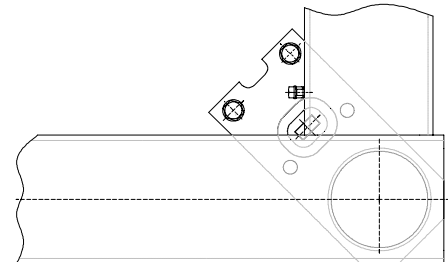


figure 2



3. Place weighing system and attach the provided centring plate as shown in figure 1. and fix with 2 screws.
4. Adjust weighing system according to built in spirit level. Therefore lift up weighing system and put the provided compensating metal under the foots of the load cells.
5. If it is necessary to remove the official certificate plugged connection of the measuring cable at terminal to get the cable through the empty pipe, the relevant certification authority must be informed to coordinate the auditing procedure. By a Dongel verified scale the plug is not protected. It is allowed to disconnect the weighing system from the terminal.
6. Put terminal into operation according to separate manual instruction of the terminal.

Important:

- For cleaning wipe weighing system with wet cloth. Do not hose down with water.
- All maintenance -, cleaning and repair work of the weighing system must be always be done in unstressed condition of the equipment.
- During operation the general rules for the prevention of accidents are to be considered.

